

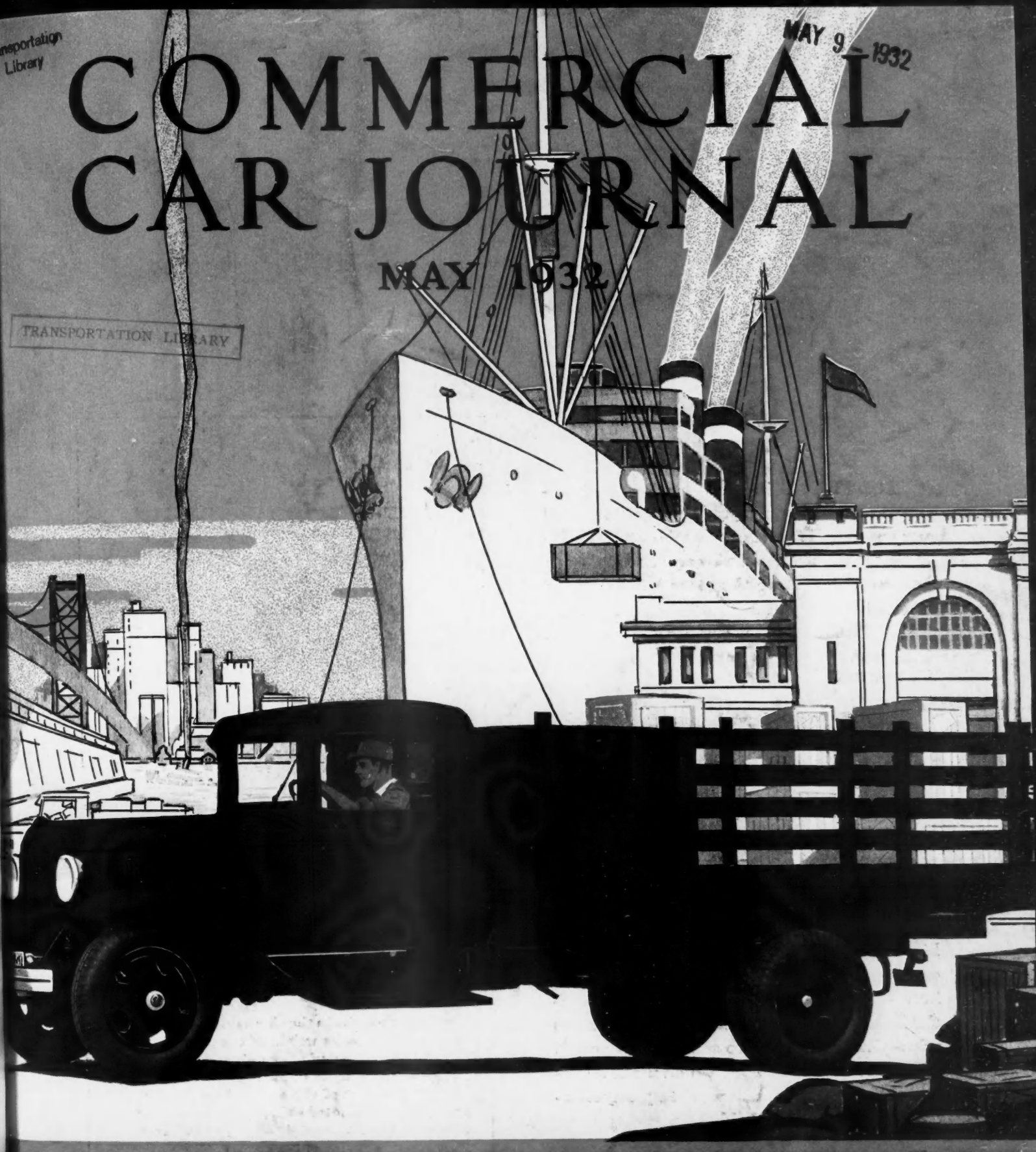
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COMMERCIAL CAR JOURNAL

MAY 1932

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REO

Reo Trucks and Speedwagons range from 1½ to 4 tons. Prices \$625 to \$2800, chassis, F.O.B. Lansing. Matched bodies to suit every purpose. New Tractor-trailer units—1½ to 4-ton tractors with matched semi-trailers; gross capacities, 16,000-35,000 lbs.; \$1575 upward, chassis, F.O.B. Lansing.

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Announcing

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REDUCTIONS in the list price of Pierce-Arrow trucks, ranging from \$650 to \$1600 per truck, call for an explanation. The explanation is that Pierce-Arrow trucks are now to be merchandised on the same basis of small profits to factory and to dealer which enabled Studebaker trucks to show an increase of 127% in registrations last year when the industry as a whole decreased 23%.

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lower price per truck

MODEL	Former List	New List	Reduction
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15 T 361 —180"	3100	2300	800
24 T 361-T—150"	3200	2400	800
13 S 385 —160"	3150	2500	650
18 W 361 —150"	4100	3000	1100
21 W 361 —150"	4200	3100	1100
18 R 428 —150"	4500	3600	900
21 R 428 —150"	4600	3700	900
21 R 501 —150"	4700	3750	950
35 R 428-T—150"	4800	3800	1000
24 X 501 —160"	5400	4200	1200
28 Y 479 —160"	5850	4400	1450
28 X 501 —160"	6000	4600	1400
45 X 501-T—160"	6200	4800	1400
24 M 611 —160"	6450	5000	1450
28 M 611 —160"	6900	5400	1500
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The first two digits in the above symbols designate the maximum gross weight of the truck in thousands. The letter designates chassis characteristics. The three digits which follow the letter tell the displacement of the engine in cubic inches. Thus, 13 S 385 is rated at 13,000 M.G.W.; the "S" tells that it is the new eight-cylinder truck with a Pierce-Arrow engine of 385 cubic inches displacement. The letter "T" at the end of the symbol designates a tractor.

 **PIERCE-ARROW** 
Buffalo, New York

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TABLE OF CONTENTS

FEATURE ARTICLES

The President's Page	13
Are Trucks in Need of Interstate Regulation?	14
No! Unless the Red Tape Bound Competitors Too	14
Yes! It'd Stop Rate Chiseling by Big Shippers	15
Yes! Competition on a Fair Basis Is All Railroads	15
Ask	18
No! Competition Serves Public As Regulative	18
Force	19
I. C. C. Asks Congress for "Partial" Truck Regulation	17
An Engineer Eyes the Future Truck	22
Oil Change is a Bugaboo But It Can Be Controlled	26
Philadelphia Electric Reduces Ford Repairs to One-	27
Man Basis	27
How Should Truckmen Classify Commodities?	29

NEW PRODUCT DESCRIPTIONS

Indiana Shuffles Units to Fit Job	30
White Model 618, 3 to 4 ton	31
Stoughton Stretches Line with Cushion Trailer	33
Ford Sticks More Power in Truck	34
Reo Powers New 1½ Ton with Gold Crown Six	35
Autocar 1½-ton R	36
Anthony Dump Body Shaker	36
Fuhrman Twin-Axle Trailer	36
Federal 6-ton 6-Wheeler	37
G.M.T. Trailer for T-18	37
Timken-Bendix Trailer Axles	37
Stewart Drops Two New 6's \$200 Each	38
Diamond-T Starts New Line at \$795	38
Marmon-Herrington T32 Has More Power	39
New Dodge 2-Ton Priced at \$795	39

DEPARTMENTS

Our Own Ear to the Ground Department	21
The Overload	21
After Hours	24
Parts Descriptions	32 &
News, Automotive Flashes	43
Prosperity Notes	43
Personnel Changes	43
New Truck Registrations	44
Commercial Car Specifications	62
Advertisers' Index	94

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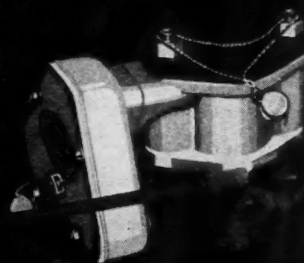
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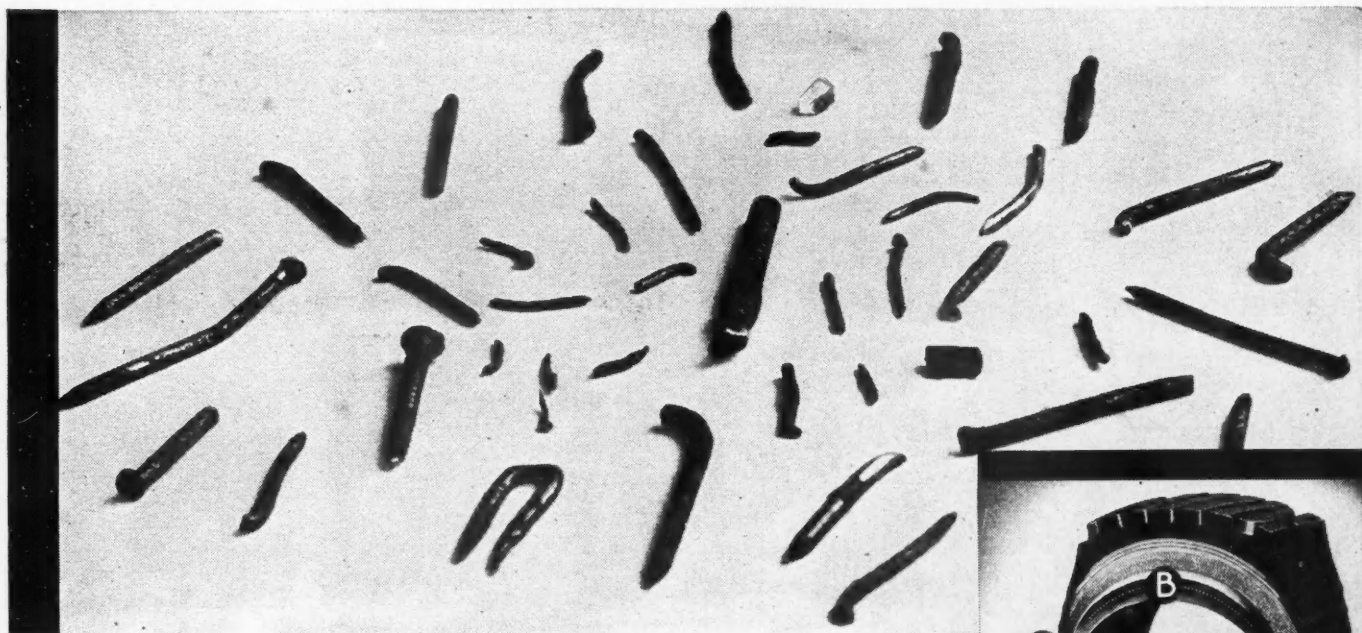
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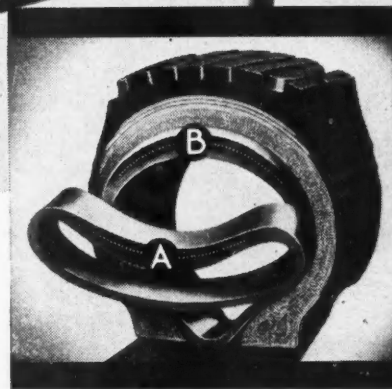
"... the tire was still giving service without loss of air pressure," he writes, "when your salesman called on us and, in company with our garage mechanic, noticed several of these nails in the casing. Your salesman suggested that the nails be extracted. The tires and Air Containers had already run 15,000 miles!"

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May, 1932



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The Commercial Car Journal



THE PRESIDENT'S PAGE

COMMERCIAL CAR JOURNAL

PHILADELPHIA

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MAY, 1932

VOL. XLIII, No. 3

CENTURIES ago a satirist by the name of Aesop wrote a fable about a somewhat foolish countryman who had a goose that was prone to lay eggs of solid gold and who killed this same goose in a futile attempt to discover the mechanism that caused this seeming impossibility to become a highly remunerative reality.

Today we have an exhibition in this country of groups of men who apparently are doing their best to repeat the experiment of the ancient rustic. This time the trucking industry represents the goose, while the persons playing the role of the bucolic experimenter are gentlemen occupying seats in our halls of legislation, both state and national.

Today the motor industry represents one of the largest sources of revenue for government. To be explicit, operators of motor vehicles pay nearly 10 per cent of all taxes. In 1931 they contributed \$1,022,000,000, an amount equal to a quarter of the total expenditures of the Federal Government. Of this amount the trucking business contributed a large share.

Yet state legislatures and congress seem determined to do all in their power to kill this golden-egg-laying goose by attempts to pile on still more taxes and to so harass the business by impractical regulations that it cannot operate success-



By

PRESIDENT

and

GENERAL MANAGER

General Motors Truck Co.

Makers and Users of Trucks Must Stick Together to Defeat Legislative Attempts to Sandbag Our Business With Unreasonable Regulation and High Federal and State Taxes

fully. Perhaps, however, this goose won't remain so complacent as did the goose that laid golden eggs for Aesop's fabled gentleman.

The automotive industry has too much at stake to permit itself to be the victim of short-sighted legislation such as has been piling up. Perhaps the industry has been too complacent in the past, giving legislatures the impression that if more money is wanted the automotive pastures are easy picking. The automotive industry has endeavored to be fair; it has been willing to do its share, and it has done its share. But when legislation approaches the point of confiscation it is time to make a united stand and a firm stand. Particularly so in the case of commercial vehicles.

The commercial vehicle industry is confronted with two menacing situations:

1. A plethora of conflicting legislation aimed at regulation of commercial vehicles.
2. Increased taxation on operators both Federal and state.

Varying state regulations that are growing more and more complicated every year are tending to erect border barriers that are inimical to the interstate operator. Equipment valued at millions of dollars may be rendered obsolete just at the whim of a state legislature. We have the example of a

TURN TO PAGE 44, PLEASE

ARE TRUCKS IN NEED OF



NO! UNLESS THE RED TAPE BOUND COMPETITORS TOO



It is quite true that when motor truck service first began, the fixing of rates was largely a matter of guesswork. If a man guessed high enough, he made money, and if he did not, he went out of business. Undoubtedly, the motor operators throughout the United States will show a large number of failures in the early days of intercity trucking. This is particularly true of the early days when pneumatic tires were not used and before the roads had reached their present state of improvement. The

loads which the early trucks could carry and the damage resulting from the use of solid tires, the restrictions in speed which were necessary for safe performance, made it difficult for motor truck operators to determine what rates they should charge in order to make a profit or come out even. Many of the early operators were irresponsible. They did not know anything about making rates, and it is no wonder that many of them fell by the wayside.

We no longer have these factors with us. Motor truck companies throughout the country, and particularly in our section of the country, are now well organized, fully protected by insurance and are making rates based upon an intelligent cost study and not by "rule of thumb." In some cases, they are able to haul freight cheaper than the railroads. We find in other instances that we can make a delivery from store-door to store-door at practically the same rates as the railroads charge from station to station and at the same time make money.

The claim is made that the highways are furnished free to the motor truck companies, that they are undertaxed and that their competition with the railroads is unfair. We deny these claims most emphatically. Our present equipment consists of 102 trucks and 12 business cars. We pay the following taxes: Personal property paid to municipalities; federal and state taxes, motor vehicle license fees paid to states; gasoline taxes paid to states. For 1931 they amounted to approximately \$42,500. We certainly do not feel that anyone is giving us a free right-of-way, when we are compelled to pay this sum for the privilege of doing business.

We consider ourselves a "common

Says E. J. ARBOUR, General Manager, Consolidated Motor Lines, Inc., Hartford, Conn.

BESIDES—

Legislation will only increase the cost of motor transportation to the public.

In all my experience I have never heard any shipper or receiver claim a truck operator was discriminating against him.

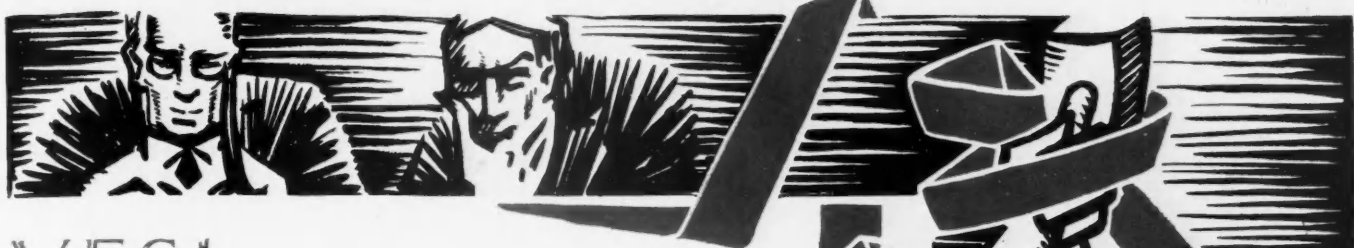
We're paying our way on the highways. We paid \$42.50 in taxes in 1931. The percentage relationship of taxes to net revenue is 32 for railroads; ours is 41.7.

carrier" to a certain extent. We also do certain work under contract. We undertake to carry goods for anybody, provided that they are of a character adaptable to our service. On the other hand, and as I have previously said, we do some work under contract. For instance, we have a contract with certain companies, and under this contract we are obliged to furnish service at any time of the day or night.

I have given the question of motor truck interstate regulation some study. I would be in favor of regu-

TURN TO PAGE 16, PLEASE

INTERSTATE REGULATION?



YES! IT'D STOP RATE
CHISELING BY BIG SHIPPERS

Says J. R. BINGAMAN, President,
Bingaman Motor Express Company,
Incorporated, Reading, Pa.

BESIDES—

Regulation should cover owner-operators as well as common carriers and contract carriers.

Regulation should be enforced by a Department of Transportation instead of by a Commission.

Truck rates for door-to-door service should never be less than railroad station-to-station rates plus a reasonable terminal charge.

SINCE the motor truck has attained a prominent position in transportation much is being said regarding the necessity of regulation. Quite naturally there is much to be said both for and against Federal regulation of motor trucks in interstate commerce. And as an operator, I will seek to explain why I am so strongly in favor of regulation.

The Federal Government has made two exhaustive investigations as to the advisability of regulating interstate trucking activities, and in both investigations testimony was taken in sections of the country from coast to coast. In both these investigations the opposition was similar to that of every investigation held prior to passage of

laws placing other public utilities under regulation. No necessity for regulation because of the lack of proof of harmful practices, impossibility of enforcement, and accusations as having been fostered by interested parties, such as the rail carriers. Powerful agencies were working to hinder a fair and accurate investigation, just as such agencies worked against similar regulation in other investigations. Why? Is it a fact that the trucking interests are without faults, do they treat all the shippers alike? Is there real ethics practiced by them, any more than there was by the rail carriers before they were regulated? I state that there are just as many abuses in the way of unfair discrimination committed today by motor trucks as there were by the rail carriers prior to regulation of their methods. I also contend that the fault is not entirely that of the operator, but just as much, and in fact vastly more, the fault of the shippers who use chiseling tactics.

A large shipper today cannot chisel the rail carrier. Rates are uniform, and therefore he must look elsewhere to take unfair advantage of his smaller competitors. He has found the truckman, and the system practiced before rail regulation became effective has started all over again, but in a more positive manner. With the rail carrier the shipper could only go so far, if the hauling was not profitable to the carrier, he could stop. But today a truckman with little capital is encouraged to go into the trucking business by a shipper to haul a certain commodity. He invests all he has, signs notes for the balance due on his equipment and hauls for his client. Then the chiseling begins. He has staked his all, monthly notes must be met, and he is entirely at the mercy of the client. If the shipper chooses

to take the business away from him, with pretense of a competitor giving a cheaper rate, the truckman must reduce his rate to hold the business, until the charges are far less for his door-to-door service than that of the rail carrier's station-to-station charges. This is not an exception, it is a rule, the shipper playing one operator against the other until a condition has been reached where there is no semblance of stability. One operator damns another for underquoting when the real fault lies with the shipper who encourages such practices in

order to get an advantage on his own smaller competitors. A just reduction is afforded the larger shipper against the small shipper by law in the car-load rate as against the l.c.l. rate by rail. But the large shipper is not satisfied; he wants a greater advantage, and in the truck he has found it. Is there any wonder why the large shipper goes before committees and states that regulation is not needed, that the truckman has done no wrong? He does not state the whole fact. He does not state why he doesn't want regulation; that he has done wrong himself, and wants to continue to do so.

The records of Flynn's investigation and the articles appearing in trade journals show a divided house in the shippers' attitude in relation to regulation, many favoring strict regulation of all forms of transportation, and others opposing any regulation. Assuming that those opposed to regulation want unlimited competition on the highways, that they do not want trucking operation to become a monopoly in the hands of the few, may I not point out that by this present method of unrestricted fly-by-night methods just the opposite will be the result. Large companies, either owned by the rail interests or other parties, can open up truck lines without any necessity of certificates giving them such authority, and can, for an indefinite period, operate at a loss, driving the small independent operator out of the picture, and by slow process accomplish in that manner just what the opponents of regulation fear such regulation will bring about.

I contend that the only hope for the small operators to meet the operations of the rail-controlled truck lines is by strict regulation of both operation and rates. If there is wisdom in having uniform rates by competing rail carriers between any two given points, there is just that much wisdom in having the same principles apply to motor trucking. The truck rates should be uniform in every instance, and I further contend that as the truck service is a door-to-door service, as compared to a station-to-station service of the rail carrier, the rates for such service should never be less than rail rates plus a reasonable terminal charge.

The argument that there is no proof that such rates are needed, that the use of such rates may make an exorbitant profit for the truck operator, is not sound, for it would be a novelty to see any truck operator make a real fair profit in this business. Novel indeed, and yet there are many who charge far in excess of rail rates. Due to this unsound method there is no market for the securities in the trucking establishments, as there is in any regulated public utility, and yet there would be, were the foundation built on a guaranteed, protected and sound basis. We also must not lose sight of the fact that we are only a part of the vast transportation system of this country, and that we should by law

be forced to stay within the field for which we are fitted.

Strict laws should be passed covering every form of transportation, including the coastwise and inland water steamship lines, pipe lines, rail carriers and common carriers, contract carriers and owner-operator truckmen. The taxation portion of these laws should be strictly uniform in principle, so that the tax distribution is even among all carriers, thereby making it less to all, instead of excessive to some and eliminating others entirely.

To stabilize interstate laws, and because the Federal Government has paid more than the states to build the main arteries of travel, trucks in interstate commerce should buy a Federal license and pay for it on a basis which takes into consideration the number of states through which the operator desires to travel. From this tax the government should pay the states a uniform amount, retaining a like amount of the tax. This tax should not be so burdensome as to discourage trucking, but should be a fair, equal, uniform tax and should be imposed on every commercial truck whether engaged in common carrier, contract carrier or owner-operated service.

Why the owner-operator? Because he is in the transportation business just the same as the other truckmen. He is in direct competition with them and with the rail carriers. If he doesn't want to pay the tax he has the alternative of giving his hauling to a common carrier and confining his activities to merchandising or manufacturing, leaving the transportation to the carrier—rail, water and truck—properly adapted to handle it.

For example, I know that a leading department store with branches in New York and Philadelphia delivers to all towns within a radius of 100 miles of Philadelphia. The government certainly would not allow this store to build rail lines to serve its customers in this area. But it permits the store to use the government-built highways in direct competition with rail carriers and truckmen, who are common carriers, and yet it does not have to pay gross receipt taxes and give back to the government all it makes as excess profit. The store will claim that it makes no charge. That may be true—as a direct charge—but it is made nevertheless in the sale.

And, because of this this, how can the small merchandising man hope to compete? He cannot maintain a fleet of trucks, using the state and Federal highways free of charge. He must pay a carrier—truck or rail—to make his deliveries. Therefore he is placed in an unfair position, due entirely to the large merchandising man using something free that was built by the small merchant's money just as much as any other man's.

If the large establishments want to use the highways they have that right, just as much as anyone else, but when

they do it commercially they should expect to pay exactly what any other carrier has to pay, not more, but no less. If they don't they are taking undue advantage of their small competitor. He can't do it; he hasn't the business to warrant it, therefore he must pay to have his deliveries made by a commercial common carrier. Some big department stores have gone so far as to stop at factories and get a return load from the city of Reading. Soon they may establish a regular run—still hoping for exemption from taxation.

How can a person in the transportation business for a living make such charges? I make the charges because they are true, and in fairness to transportation. I believe I will live to see the day when all are paying uniform taxes for use of the highways—both common carriers and those who transport their own material in direct competition with carriers.

Enforcement, they say, is impossible. I contend that it is not. Rail carriers, radio, telephone, electric light companies are regulated. That isn't impossible. Surely, it is not easy but it is not impossible.

Regulation should be enforced by a Department of Transportation instead of by a commission. Transportation is the largest industry in the world and warrants a department to regulate every phase of it. A commission by very appointive nature is bound to be less efficient than a department with one head. Why not combine the Navy and Army departments into a Department of National Defense with one head, and give to transportation the cabinet secretaryship vacated by the consolidation?

No! Unless the Red Tape Bound Competitors Too

CONTINUED FROM PAGE 14

lating common carriers, if that regulation would protect me from independent motor truck competition and from the competition of the railroads or motor truck companies operated by them. If contract carriers are to be permitted to compete with me and take my business away from me without having their rates regulated, I certainly would be opposed to having mine tied up in any way so that I could not meet that competition.

Let me illustrate this point: At each one of our nine terminals I have a very competent office manager. These men are thoroughly familiar with every pound of freight handled by my company; they know we have certain shippers whose business is of sufficient volume to warrant operation of a few trucks at a profit. They know that in another city there is a large shipper who has heavy tonnage going to one of our destinations. At that destination they know of another shipper who has much ton-

TURN TO PAGE 20, PLEASE

I. C. C. ASKS CONGRESS FOR 'PARTIAL' TRUCK REGULATION

Survey Report Urges That Carriers Be Required to Take Out Permits, Insurance and to Keep Records

ADMITTING that the regulation of transportation of property for hire by motor trucks operating in interstate commerce is a complex matter which requires the accumulation of more facts, the Interstate Commerce Commission in its report to congress on its rail-truck coordination investigation recommends the wisdom of making haste slowly.

Conveying the inference that it considers its recommendations perfectly harmless and nothing more than the first step of an infant, the commission urges among other things that common carrier and contract carriers be required to take out permits and liability insurance and to keep records of operations and submit reports.

Reasons for this cautious procedure, the report points out, are:

1. The practical difficulties of regulation are vastly increased because the indications are that the number of operators is very large and that the operations are mostly on a small scale.

2. It is as yet uncertain how far regulation may lawfully be extended to contract carriers which do not operate as common carriers.

3. The complete inexperience of the Federal Government in this field of regulation.

Nevertheless the commission sees need for the setting up of an organization which would serve as a nucleus for such further steps in motor-vehicle regulation as experience and added information may show to be desirable and practicable, and accordingly recommends the following:

Transportation of property for hire by motor trucks operating over the public highways in interstate commerce should be subjected by law to reasonable public regulation. Carriers should be divided into two general classes, common carriers and contract (private) carriers. The first should include all carriers who undertake for hire to transport from place to place the property of those who may choose to employ them. The second should include all carriers not within the description of common



such permit, which should be issued for a definite period, should be assignable with the approval of the commission, and revocable by it for good cause shown.

There should be required as prerequisites to the commencement of operations: (1) If by common carriers, (a) a permit, and (b) liability insurance that will assure adequate protection for loss or damage to cargo, and for personal injuries and property damage; and (2) if by contract carriers, (a) a permit, and (b) liability insurance to secure the public in case of personal injury or property damage. [Note: Contract carriers need not take out cargo insurance.—Ed.]

All motor carriers for hire should be required to keep such records of

carriers. (The terms "common carrier," "contract carrier," "private carrier for hire," and "privately owned or operated trucks" refer largely to practical classifications of truck operation. Legally speaking, there are only two classifications of motor-truck operations for hire, namely, common carrier and private carrier.)

All motor carriers for hire should be required to apply to the commission for a permit to operate and upon compliance with all the applicable provisions of the act should be entitled to

TURN TO PAGE 44, PLEASE

ARE TRUCKS IN NEED OF

YES! COMPETITION ON A FAIR BASIS IS ALL RAILROADS ASK

I PREDICT that the solution of the proper, just and fair regulation and control of highway traffic in the public interest will never be reached until we have Federal regulation as the basis of a unified system of control, and I further predict that such a situation is surely coming about because the interests of the public and of highway transportation itself so require.

Far from being harmful to legitimate highway transportation, proper regulation is an absolute essential to placing that industry upon a sound, substantial, economic basis. Even without any reference whatever to relations between highway transport and the railroads, regulation of highway service is required to correct internal evils arising from uncontrolled competition, which closely compare with those that afflicted the railroads and their patrons in an earlier day and made railroad regulation inevitable. With all its errors, regulation rescued the railroads from rate wars, from secret rate cutting, from depletion of revenues by rebates, and from competitive over-building and over-extension of facilities. It will do the same thing for highway transport, and is particularly needed in the trucking business, where rivalries of trucks and truck lines with one another and with the railroads can only be adequately described as competition running wild. It would be an exceedingly wise and shrewd move for the legitimate truck and bus interests of the country to unite now not merely in submitting to, but in demanding, a constructive, just and economically sound plan of Federal regulation.

The railroads do not advocate making highway transport artificially ex-

Says J. S. EYSMANS, Traffic Vice-President of the Pennsylvania Railroad



pensive in order to return traffic to the rails. We concede the public's right to select the agency of transportation which it wants and which it finds most useful. We do not merely concede, we proclaim, that the public is entitled to the benefit of any and all real advances in the art of transportation. All we ask is that when we are called upon to face greatly increased rivalry, and upon a scale which a few years ago would have seemed impossible, there shall be a fair field and no favor; that the Government, in exercising the power of regulation, shall deal as nearly as possible upon the same basis with all. The country cannot afford to permit unfair competition to impair the capacity of the railroads for rendering essential and irreplaceable service.

TURN TO PAGE 20, PLEASE

BESIDES—

It would be exceedingly wise and shrewd for legitimate truck interests to unite now not merely in submitting to, but in demanding, a constructive, just and economically sound plan of Federal regulation.

The unregulated truck, varying its rates at will, is rapidly bringing back the old evils of secret rates, discrimination and rebates.

Common carriers and contract carriers should be regulated as to rates, practices, accounting, working conditions, etc.

The regulative authority should be the Interstate Commerce Commission.



INTERSTATE REGULATION?

BESIDES—

There is no greater necessity for regulation of the competitive truck business than there is for regulation of any other competitive business.

Railroad regulation was necessary because rail transportation was a monopoly.

We do not believe contract carriers can legally be regulated. (Supreme Court: *Smith vs. Calhoun*.) We are certain that practically they cannot be regulated.

Theoretically, we believe common carrier interstate trucks, constituting only 1½ per cent of trucks in the country, should be regulated. Practically, any such attempt would be ineffective and impractical.



NO! COMPETITION SERVES PUBLIC AS REGULATIVE FORCE

Says T. R. DAHL, Explaining Position of National Automobile Chamber



WE believe that the motor truck business is a highly competitive form of business in which the public interest is fully protected through the regulative force of competition.

We do not believe that there is any greater necessity for the regulation of the competitive motor truck business than there is for regulation of any other competitive business.

It has seemed to the organization which I represent that the fundamental facts in reference to motor truck operation in this country have not received the consideration that should be given to them.

It does not seem to us that sufficient consideration has been given to the ownership of the trucks in this country or to the kind of business in which they are engaged.

It is necessary to understand that of

the 3,490,000 trucks in this country today, 85.8 per cent of such trucks are privately owned and privately operated. It is essential to know that 2,200,000 operators of motor trucks own only one truck each and that the 3,490,000 trucks are owned by 2,500,000 individuals. These trucks are engaged in the widest possible diversity of use. The farmer's truck is carrying his fresh vegetables, grain and cattle to market. The department store trucks are making retail deliveries of goods to its customers. The milk man, the dump truck operator, the garbage truck operator and the heavy-duty truck operator are all engaged in handling only that type of merchandise or material for which they are specially constructed.

There is practically no similarity in the business engaged in by motor trucks, except as between trucks serving the same type of business.

The privately owned and privately operated motor trucks, although subject to the same police power regulation as passenger automobiles, are no more subject to regulation as to the business in which they are engaged than is the privately owned passenger automobile. They are not "clothed with a public interest." They are primarily engaged in carrying the owner's property at such times and to such places as the owner desires. They are doing today's horse and wagon job of a decade or two ago.

Contrast that condition with the fact that 85 per cent of the total railroad mileage of the country is controlled by 15 systems and you have a picture of the total dissimilarity between an organized system of transportation and individual motor truck



movement of private property.

There has been much loose thinking and much loose talking on whether trucks engaged in contract carrying can be regulated as to their business. Contract carriers, as we understand them, are trucks which are hauling for one, two or a small number of customers under a specific contract, who haul for them and who do not hold themselves out to carry for the public general transportation business. They constitute 8.7 per cent of the motor trucks in the country. We do not believe that legally they can be regulated. We believe that the Supreme Court of the United States in its latest decision on this question in the case of *Smith vs. Calhoun* definitely decided that question. We are certain that practically they can not be regulated.

We therefore believe that regulation can only be applied to common carrier trucks which constitute but 5.5 per cent of the motor trucks operating over the public highway.

Even here there is a dissimilarity between rail and motor operation in that no motor common carrier can hold itself out to carry all types of business which may be offered. For example, the furniture van cannot haul steel girders nor the egg truck, cement. The physical characteristics of the truck itself prevent such "holding out."

As far as Congress is concerned, under the Commerce clause of the Constitution, it can only regulate common carrier trucks engaged in interstate transportation, so common carrier operations must be broken down into intrastate and interstate movements. Interstate common carriers constitute but 1½ per cent of trucks in the country.

Theoretically we believe that these common carrier interstate trucks should be regulated. Practically, any such attempt to regulate this small portion of the movement would be ineffective.

It would be ineffective first because of the very small percentage of the trucks involved. It would seem unreasonable to build up an intricate regulatory machinery for enforcing a law to apply to such a small percentage of vehicles. We believe that the cost of enforcing such a law would be tremendous. It would be necessary to police every state line in the country.

It is impractical because of the fact that these interstate operators are continually subjected to the competition of contract carriers, both as to rates and service. If the business of the interstate common carrier should be penalized with regulations which increased its costs of operation, we could only expect a repetition of the experience in the various states where common carrier trucks have either lost their business to the contract carrier, or have gone into the contract carrier business where they have been burdened with regulations.

Railroad regulation was necessary because rail transportation was a mo-

nopoly. It was not subject to competition. It was necessary for the protection of the small shipper against favors or rebates to shippers of large quantities of goods.

The regulation of motor truck transportation, on the other hand, would have exactly the opposite result. Truck transportation is competitive. Regulation, in so far as it increases the cost of truck transportation, or restricts its efficiency, would result in the shippers of large volume of goods either employing contract carriers or operating their own trucks. The small shipper and the small business which does not have a sufficient volume of goods or sufficient capital to purchase its own trucks would therefore be deprived of the use of motor transport over the public highway, toward the cost of which that business has contributed.

We believe, therefore, that the competitive nature of the motor truck business and the individual ownership of the great bulk of the motor trucks operating over the public highway today completely differentiate that type of transportation from other types of transportation monopolistic in nature and clothed with a public interest. We do not believe that this type of motor transport should be regulated as to its business in interstate commerce.

Having reached this conclusion, the question of competition with other types of transport is an economic question and not a legislative one. Although in our opinion the record proves that the motor truck pays its fair and full share for the use of the public highway, that question is not germane to this discussion and is primarily a question for the states to determine, as the states build and maintain their highways at their own expense, subject only to a comparatively small rental paid by the Federal government, through Federal aid for the use of the state highways.

No! Unless the Red Tape Bound Competitors Too

CONTINUED FROM PAGE 16

nage going in the opposite direction. If my rates are fixed by being placed under the jurisdiction of some government body and the contract truckman is not regulated, there is nothing to prevent my office managers from combining, buying a few trucks, going to my customers and saying to them: "We will make a lower rate than you are now paying; we will make a contract to handle your business for next year at so much less than you are now paying." My office managers could take away from me the cream of my business and I would be powerless to do anything to protect my interests, for they know they could make such a contract without having to appeal to any regulating body for a certificate of convenience or for the approval of their rates.

Yes! Competition on a Fair Basis Is All Railroads Ask

CONTINUED FROM PAGE 18

Years ago this country learned one of its great lessons. It was that if business is to function properly, transportation rates must answer four tests. They must be reasonable; they must be non-discriminatory; they must be stable; they must be published and maintained. To make forward commitments safely, business men must know what their own transportation costs, and those of their competitors, are going to be.

For more than a quarter of a century railroad rates have met these requirements. But now the unregulated truck, varying its rates at will, with no obligation to publish and maintain its rates, with no duty to charge like rates for like service, is rapidly bringing back the old evils of secret rates, discrimination and rebates. In numerous industries the resulting disorganization and confusion have become exceedingly serious. Contract or charter trucking is of course the principal factor in this situation, but it must be remembered that the contract trucks outnumber the common-carrier trucks many times to one. Moreover, common-carrier trucks are under no legal obligation whatever, in interstate business, to adhere to a scale of rates even if one is published, and such charges may at any time be treated by either side merely as a start for bargaining.

The railroad with which I am associated is not an enemy of the truck or bus. We are proud to be counted among their good friends. We participate in extensive truck and bus operations ourselves, and expect to extend their scope in the future as public demand warrants. We yield to none in admiration of the achievements of the automotive industry. We fully appreciate the immense traffic which its development has brought directly and indirectly to the railroads.

We know that many commercial truck and bus enterprises, in private hands, are on a sound basis and are profitable. We know that others are not soundly conducted, from the viewpoint of the public interest, and in many cases are not really on a remunerative basis to their owners, because the owners lack the knowledge and experience required to compute costs properly. They are a dead weight, dragging down both properly conducted highway service and the railroads, and threatening serious injury to both and to the public.

We have no thought that the farmer's truck or the privately owned and operated trucks of industries, not utilized in commercial transportation, should be subject to regulation, other than that which is inherent in the police powers of the state, in the interest of safety or similar considerations.



Our Own Ear to the Ground Department

A Manufacturing Milestone

Next month, with the kindly cooperation of Deane Chivington, we hope to tell you all about National Trucks Associated. This is the name under which a group of truck manufacturers is organized to produce and market a new line of trucks. Each manufacturer will sell the same trucks; whether with his own nameplate or a common nameplate, we do not yet know.

A New Truck Name

If you didn't notice it in last month's Specifications Table, your attention is now called to a new manufacturer in the truck field. It is the Differential Steel Car Co., Findlay, Ohio. The truck is called "Differential." One model, a 2½-ton, is listed.

Blessed Events

Three more truck manufacturers, one in the east, the others in the mid-west area, have developed house-to-house delivery models. Announcements will be made shortly.

We Score 22 Hits

In the March issue this department was correct in 22 out of 27 particulars regarding the new Ford four-cylinder and eight-cylinder models, which were announced a month later. That's what you might call getting the news to you before it is news.

And Aim Some More

So that we may have something more to brag about in another issue, here is the latest report from our Detroit sleuth regarding Ford developments: Design for large scale production of the eight is still not settled. A change in the crankshaft is probable. Crankshaft lathe manufacturers were called in April 21. Forged crankshafts were announced but there is a possibility that cast steel shafts, which were used in the experimental cars, will be used. . . . Valves are undergoing alteration. They will be made in two pieces instead of one as originally. This will make possible grinding of the cam follower by centerless grinding, instead of grinding the whole valve in one unit. This will result in production economy and also make it possible to put an adjusting mechanism on the end of the valve stem if necessary. . . . Plant is still getting deliveries on a vacuum-operated mechanism for clutches, provision for which was made in the original design of the car. This is a combination unit, serving also for vacuum operation of the brakes. It is not only possible but probable that if Ford does adopt this design, it will be offered as extra equipment rather than standard. . . . Foundry rejections of cylinder block castings are reported to be troublesome. . . . Briggs is to make an all-steel panel body for Ford.

What Will Chevrolet Do?

Although a Chevrolet factory representative is credited with making the statement, "We will have eight-cylinder Chevrolets to deliver before Ford dealers have Ford eights to deliver," reports from the factory say Chevrolet is content to stack its six up against the Ford eight. This official opinion is, of course, subject to change without notice. This department is inclined to believe it will be when the public has more opportunities to verify Ford performance claims—33 in first and better than 60 in second. A technically-minded colleague had one job up to 33 and 54. And a distributor of a certain V-12 began losing sleep after piloting his pet in a standing-start test against the Ford eight.

In the Clutches of Clutches

Spicer has an automatic clutch which operates by means of loose weights in the flywheel exerting centrifugal force against the plates. The Brown-Lipe vacuum-control clutch, the factory says, is still in the experimental stage.

Super-Balloons Roll Nearer

Activities at tire factories center around the so-called super-balloon tires. Certain truck makers are experimenting with them and the indications are that 1933 will see some trucks designed to take advantage of their (naturally) advantages. An official of a wheel manufacturer predicts pretty general acceptance in 1934. Front-end geometry problems are now being solved, not to mention the simple problem of brake drum heat dissipation.

Mileage Stimulators

Tire life is about to be stepped up a mess of miles with the advent of two new helpful auxiliaries. One is a warning which gives an alarm when inflation pressure in any tire is reduced to a predetermined amount. The other, a remedy, shoots specially prepared rubber compound into small tread cuts to prevent the ingress of deteriorating moisture to the carcass.

THE OVERLOAD

A collection of items—interesting even when not news—and garaged here because there's no other place for such morsels.

See You At the Blow Out

A Beer Parade is slated for May 14 in New York City. A lot of trucks will be in line, no doubt, because the parade is political in nature and truck operators should play politics. But we wonder if any truck will be equipped with a special body designed for the beer-toting vocation. This is a golden opportunity, we think, for a body manufacturer to get a great big hand. And to give the public a good idea of what a load of lager will look like on a city street when, as and if, the special beer body should be mounted on a drop-frame truck or trailer chassis.

The Mysterious Mr. H.

We'd like to know the name of the man who, signing himself "H. Mystery, who is the writer?", congratulated us upon our Specifications Table revision and then spent at least eight hours in revising our revision. He sent us his idea of how the information should be re-grouped on the back of a blank stock certificate with the customary gold framework. The communication was postmarked "Fairville, N.B." We wouldn't be sure this was in Canada if the postage stamps weren't Canadian. This anonymous reader performed a task which required a remarkable degree of concentrated thought, and a thorough knowledge of the purposes of the Specifications Table. Our hope is that he sees this and affords us the pleasure of establishing communication on a personal basis.

The Final Cut

Well, well! Bootleg liquor is so bad that it isn't safe to let your truck cooling system drink it. The Bureau of Standards determined this after tests and bulletined government departments not to use confiscated bootleg alcohol in the radiators of automotive vehicles because of its harmful effects.

Biographical Note

Properly framed and hanging in a corner of the picture gallery which Alfred Reeves, general manager of the National Automobile Chamber of Commerce, uses as an office is a certificate which discloses that "A. W. Reeves is hereby appointed assistant messenger in the Treasury Department at a salary of \$800 a year. (Signed) W. E. Chandler, assistant secretary." The appointee is not the present N.A.A.C.C. general manager. The certificate is dated Dec. 1, 1865. It was his father. And it is sound to assume that if one seeks the source of the tact and diplomacy for which Alfred Reeves is justly noted, he will trace these qualities if he begins with this certificate of appointment.

YXCP3, JUVUOG, 5582B26 ???

No one to our knowledge has plumbed the peculiar mechanism of the remarkable minds that give birth to the jaw-breaking names on Pullman

cars. Probably it would be just as difficult to probe the motives of the men in the industry who give model numbers to Engines, Transmissions, Rear Axles, Front Axles, and such like. We'd like to know, just for instance, why Hercules finds it necessary to indicate one of its engines as the "YXCP3;" why a Fuller transmission needs the label "JUVUOG;" why the Shuler front axle requires all of "5582B26," or why Wisconsin must stamp a rear axle with "69317BL." Does anyone know the answer, or is it just another of those things?

Are You Readin'?

You probably aren't interested but we want to put the following on record: Last month we enjoyed: The visits of H. O. Roosen, manager of the Philadelphia Sterling branch; E. L. Michaels, sales manager A. L. Hansen Mfg. Co., of Chicago. Local luncheon engagements with Charles H. Wondries, vice-president in charge of sales, S. P. A. Truck Corp. of South Bend, Ind.; John Feehan, assistant advertising manager, The White Co. of Cleveland; Dow Perkins, territorial representative for Pierce-Arrow trucks of Philadelphia; Robert F. Wood, advertising manager, The Autocar Co. of Ardmore, Pa. The interesting correspondence of Walter Maynard, sales manager of the Chicago White branch, and of Frank Rose, fleet operator, of San Diego, Calif.; Fred B. Lautzenhiser, transportation sales engineer, International Harvester Co. of Chicago; M. C. Horine, sales promotion manager, Mack, of Long Island City.

Meet the Major!

Mr. Wood (it'll be exciting if he doesn't want this generally known) is the amanuensis (it's clean, believe us) of the omniscient Major whose opinions feature each issue of The Autocar Messenger, Autocar's house organ. The Major, he revealed to us, is not an individual. He is a composite of Autocar executives. To put it simply, the Major is the executive being interviewed by Mr. Wood at the moment. We may be saying something we shouldn't but while the Major's opinions are always very interesting, they are never quite as interesting as Mr. Wood's manner of setting the stage for them, and of expressing them.

The Professor Prognosticates

Professor A. F. Seward is the World's Foremost Astrologer, as you can see by glancing at the lettering on the ornate bus body (furnished by Studebaker), "rivaling the splendor of an Eastern potentate's equipage," in which the professor travels about the country. Recently the professor predicted the early return of prosperity. He explained that we are now emerging from the low pressure area occasioned by Saturn. This planet, which controls business (tell your Congressman), requires 29½ years to complete its orbit and it takes 2½ years for it to pass through the sign of the zodiac which brings about the so-called hard times. We hope the professor is right, but our calculation makes us suspect Saturn struck an obstacle on the way through. Maybe it was Congress.

Notes on This Issue

The reason why you won't see a picture of J. R. Bingham on page 15 is because, as he answered our request for a photograph, "I am a Quaker." And the reason E. J. Arbour's likeness was omitted from page 14 was because it threw the spread out of balance. Mr. Arbour, who obliged with a handsome cabinet photo, therefore must blame Mr. Bingham. We'll wager Mr. Bachman will wonder where we got the snapshot reproduced on page 22. It was taken in 1920 at an S.A.E. convention. We don't know where the annual meeting was held that year but after studying Mr. Bachman's wearing apparel we make the Sherlock Holmes deduction it was somewhere in the Adirondacks. Figure it out for yourself. He wore white flannel trousers, a coat sweater, a coat over that, a straw hat and two canes. The latter probably for protection against wild animals. . . . Twenty-five companies are represented among the products described this month. Less display is given to each description than normally, but the descriptions themselves are just as thorough.

After All, This Isn't 1929

Sign in the Abington Memorial Hospital, Philadelphia: "Maternity Ward. No children allowed."—G. T. H.

AN ENGINEER EYES

WHAT future developments in truck and bus will be can be most successfully determined from what has happened. Automotive transportation created the demand for improved roads which, in turn, made desirable increased speed, made it possible to cover greater distances, and made it necessary to provide more power, comfort and safety as features of design.

It seems logical that these trends will carry on in this same direction. Roads will be made wider, grades will be reduced, radii of curves increased, crossings at grade eliminated and in consequence higher speeds will be possible. As a result we note that consideration is being given to windage and the forms which will reduce it to a minimum and also provide stability. At the same time we must give thought to the need for simplification of control to increase the certainty of operation.

The passenger car has reflected these trends most rapidly, but the bus and truck have never been very far behind and, in some instances, have been the leaders. Unfortunately, steps taken to simplify control have resulted, in the initial stages, in increased mechanical complication. This is evidenced by the term gadget, which has appeared in recent months. As I see it, out of the gadget will emerge eventually a coordinated mechanism which will provide the desired simplicity of control, and, although the mechanism in its entirety may be more complicated, it will be less obvious. It is significant, however, that the objection of complexity apparently never operates to retard acceptance by the public of a device which produces a desirable result. The powerplant is always a conspicuous and important automotive consideration. While there has been a notable improvement in the ability factor of trucks and buses in recent years, we are still far behind the passenger car. True, it is undesirable to provide for maximum speeds on a comparative basis, but it is essential to provide for increased average speeds. This can be accomplished in part by differences in axle gear ratios, but this still leaves a gap that can only be filled by cubic inches in the engine.



By B. B. BACHMAN

Vice-President in
Charge of Engineering
The Autocar Co.

Increasing displacement obviously introduces a large number of difficult problems. In the first place, if a high ability factor is provided for acceleration and hill climbing, there will be a very considerable part of the time when the engine will be operating at a low and uneconomical load factor. From this angle, the constant pressure type engine, if it is possible to approximate such a cycle in high and variable speed engines, offers attractive features. As matters stand at present, this solution does not seem very promising. While I appreciate the danger of making such a statement, I am nevertheless of the opinion that present developments of Diesel engines are not promising. This opinion is based upon such items as weight, cost, smoothness and low specific power output.

Secondly, the question arises as to how big displacement per cylinder can be used satisfactorily. Engines are being built today with displacements approaching 150 cu. in., but I believe that it is safe to say 125 cu. in. is a desirable maximum and 100 cu. in. far better. Many of the factors which prompt this statement are well known, but there is one that has not been stated so generally. I refer to the matter of speed, more particularly the speed produced when the engine is used as a brake. In a passenger car maximum engine speed occurs in driving the car with wide-open throttle and inertia effects of reciprocating elements are counterbalanced by pressures developed on the piston. In the truck and bus, limitations of power and provision of a governor inhibit

Bachman Looks Immediately Ahead and Then Turns His Imagination Loose to Visualize the Ideal Truck

Changes Just Ahead

Roads will be wider, grades will be reduced, radii of curves increased, crossings at grade eliminated and, in consequence, higher speeds will be possible. Trucks will maintain higher average speeds.

Ability factor of trucks will be higher as a result of increasing piston displacement, reducing weight, improving brakes, simplifying controls, cutting down wind resistance and smoothing riding qualities.

Engines will have more cylinders to keep cylinder sizes within 125 cu. in., or better still, within 100 cu. in. Turning the engine into an air compressor would provide an effective brake and reduce excessive engine speeds caused by using the engine as a brake in gear on long, steep hills.

A constant pressure cycle seems more attractive than promising. Diesel less promising because of weight, cost and low power output.

Making the body the principal chassis element and springing wheels independently will reduce weight and improve riding quality.

Power steering is on the way. Controls must be simplified but it is easier to wish for this advantage than to design it.

Changes to Dream About

An engine with all motion rotary, full torque from zero to maximum speed with same efficiency throughout operating range. Power to be delivered to all wheels as required without universals or differentials. Body and chassis should be one, with wheels sprung independently. Control should consist of a means of steering, operated by hand, and one pedal for starting and varying speed and another for stopping the vehicle.

Impressions of a talk about the future truck given by B. B. Bachman, vice-president in charge of engineering, Autocar, to the Metropolitan Section, S.A.E., in New York City.

these high driving speeds. The limitations of brakes, to which I will refer later, makes it necessary, however, to use the engine as a brake with the slower reductions of the transmission engaged, and this frequently causes excessive speeds under most unfavorable conditions.

This gives rise to the conjecture as to whether it would not be possible to arrange to turn the engine into a compressor and thereby provide a most effective brake, with adequate means for dissipating the heat and at the

THE FUTURE TRUCK



same time eliminate the destructive results of the present system.

Clutch and transmission system are, of course, fertile fields for speculation. The clash gear has had its full share of criticism, all justified logically, but strange to say, no definite improvement is in sight. The gas-electric field has had a considerable period of trial, but except for certain specific problems has not received unqualified approval. Apparently no attempt by means of liquid or air as a transmission medium has progressed beyond the experimental stage. Use of multi-range transmissions is a step, in the

direction of greater number of gear changes, toward the ideal of infinite change, which has been beneficial to a limited extent, but open to obvious criticism. On the whole, the picture seems to be one of negation. The ideals are simple and easily stated, but the means to attain them difficult.

Axles, both front and rear, are open to criticism on the ground of excessive weight and with increased service demands of greater speed and load, seem destined to grow heavier rather than lighter. The question of weight reduction seems to hinge upon the possibility of making bodies perform

the function of carrying power units and of developing a satisfactory method of independent springing of the wheels. Solution of this problem presents many difficulties. On the bus, some progress has already been made in the direction of making the body the principal structural element of the chassis, but the truck seems to present greater difficulties. One of the most obvious is the fact that body forms and dimensions vary greatly, and it seems almost hopeless to effect sufficient compromise to develop a possible production design.

TURN TO PAGE 48, PLEASE

THE FRIENDLY RAILROADS

◆ "A CLEVER WRITER SAID A SHORT TIME ago that the Interstate Commerce Commission should be abolished because it was created to ruin the railroads and its work is done."

Our interest in what the clever writer said was considerably heightened because we picked the quoted reference out of an editorial in *Railway Age*. The editorial, you need not be told, was not written to praise Caesar but to bury him—under an avalanche of abuse.

The *Railway Age* makes out a remarkably good case against I.C.C. incapacity. All of which perplexes us deeply because we can't reconcile it with the violent desire of railroads to place trucks at the mercy of a regulating body which they do not hesitate to revile. Is this a case of misery loving company?

Our perplexity simply brings home to us the terrible truth of "Man's inhumanity to man makes countless thousands mourn." Robert Burns said that a long time ago. He was a clever writer, too.

INTERSTATE REGULATION

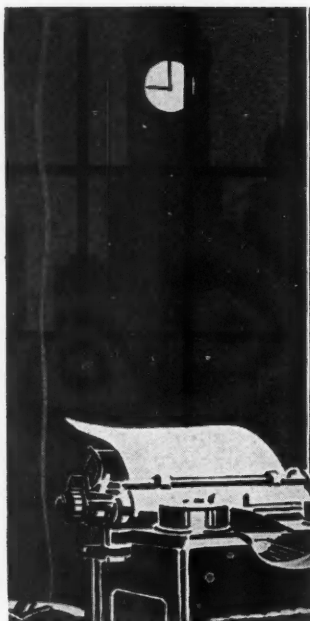
◆ ON PAGES 14 TO 20 OF THIS ISSUE WE publish five viewpoints on the question "Are Trucks in Need of Interstate Regulation?" Ordinarily we would hesitate to give seven pages to the discussion of one subject. But the subject of interstate regulation, we believe, is of such vital interest to the entire industry that we can safely risk seven pages and expect the interest of the reader to be sustained throughout.

We think we chose a decidedly favorable moment to familiarize our readers with the contending viewpoints because the question of interstate regulation is one which Congress shortly will be called upon to consider. Washington sources inform us that the Senate Interstate Commerce Committee will vote out a bus-truck bill while our presses are turning out these words for you to read. The truck provisions of the bill, we understand, will be even lighter than those proposed originally by Senator Couzens. They may follow along the lines recommended by the Interstate Commerce Commission in its report to Congress. (See page 17.)

Compared with some of the regulatory ideas which have been advanced, the I.C.C. recommendations appear perfectly harmless. The I.C.C. wants a temporary or partial form of regulation in order to determine the sort of regulation that ultimately should be applied to motor trucks operating in interstate commerce. The Commission thinks it can procure information on which to base sound recommendations if common and contract carrier operators are compelled to take out permits and submit reports on their operations. By this means the Commission hopes to amass basic data, which at the present time are not available.

To ask for so little is an extraordinary concession on the part of the I.C.C., especially in view of the positive and

AFTER



HOURS

stringent regulation recommendations made by Examiner Flynn in his report to the Commission. (See March issue, p. 22.) Moreover, there is some logic in it, which also is extraordinary. And we hope that, in the interest of consistency, the Senate Committee doesn't stipulate in its bill that in order to defray the cost of administration operators be compelled to pay a fee for permits. After all, it would be ridiculously illogical to ask the operator to pay for the cost of finding out whether he should be regulated.

The N.A.C.C., in expressing its viewpoint in this issue, contends that any regulatory attempt will prove ineffective because of the intricate regulatory machinery necessary to cope with a constantly changing large number of individual operators. This, of course, is a soundly reasoned opinion, but proponents of regulation look upon it as only a theory reared in prejudice. And it will remain nothing more than the opinion of one group until some effort is made to determine whether the theory works out in practice. The I.C.C.'s proposed partial-regulation-to-determine-ultimate-regulation seems to represent such an effort. So that, if the N.A.C.C. contention is correct, the I.C.C. findings will surely corroborate it.

THE DROP IN TRUCK PRICES

◆ OUR STATISTICAL DEPARTMENT CAME UP with some figures for our benefit which pin a rose on truck manufacturers for their

remarkable efforts to give the buyer his money's worth. Based on the assumption that the wholesale value is 75 per cent of the retail value, the statistics (bless them) show that whereas the average retail price of trucks was \$1,385 in 1921, the average price in 1931 was only \$824, a drop of 40 per cent. In 1929 the price was \$961, making the 1931 price 14 per cent in favor of the buyer.

The 1932 averages will be even lower. You have only to look through the Specifications Table to see the bargain prices at which trucks are being offered.

And for fear we'd just be boring you with obvious facts we won't go into the details of the present-day truck's superiority of design as compared with the vehicles of five and 10 years ago.

But if you want a comparison with the trend of passenger car prices, know ye that in 1921 the average retail price was \$958 and in 1931, \$765, a drop of 20 per cent. In 1929 it was \$830, making the 1931 price lower by only 8 per cent.

IT'S THE MAKER WHO PAYS

◆ THE IDEA THAT THRIFT WILL SPEED recovery from these depressing times is undoubtedly a good one. The individual and the company find it necessary to effect every possible economy in order to keep the ship afloat. Expenditures are made cautiously and when made are accompanied by the commendable desire to get all that a dollar can possibly buy. This condition in the truck industry has led to a period of price buying. Other industries are not free of this disease. It passes for shrewdness.

There is nothing shrewd about under-buying. Which is what it amounts to when a truck is purchased that is too small for the job to be performed. In dealing with motor trucks it isn't the first cost that should serve as the guide to buying. The cost of operation must receive prime consideration, because it amounts to four-fifths or five-sixths of the entire cost of transportation when measured over the life of the truck. The buyer needs to be interested most not in what money he must lay out initially, but what money he will have laid out, say, at the end of three, four or five years.

Under-buying is an evil which breeds evils. Costly operation is one of the evils and the other affects truck salesmen more directly. It is over-selling. Perhaps it is your opinion that over-selling is the real root of the under-buying evil. You may be right. Maybe the egg did come before the hen. But regardless, they are both evils and both are definitely harmful. No matter whether the buyer under-buys or is over-sold, the company that made the truck he signs for is the one that will reap his dislike. There may be an operator who will admit that the fault was his, but it will be a death-bed confession.

This leads us quite logically to the question: "In such a situation, who is to blame, the factory or the salesman?" Our answer, and we don't mean to be evasive, is: "It all depends."



LOCKHEED'S "PUBLIC"

To a great number of motorists, Lockheed Hydraulic Brakes mean comfortable, safe stopping.

These are people who have always had Hydraulic-equipped cars; Lockheed enthusiasts from the start.

When they buy a new car, Lockheeds alone don't clinch the sale—but they do impart the information to the prospect that the manufacturer has effected no compromise to build his car as fine as it is possible to build.

And invariably, Lockheed's own "public" stick to Lockheed-equipped cars.

HYDRAULIC BRAKE COMPANY

DETROIT, MICHIGAN, U. S. A.

LOCKHEED HYDRAULIC

Four **BRAKES** *Wheel*

OIL CHANGE IS A BUGABOO BUT IT CAN BE CONTROLLED



Railway Express Holds It in Leash by Using Simple Oiling Routine and Few Chassis Oils

By E. E. LA SCHUM

Manager, Railway Express Agency

schedules. We have tackled both these problems and gone a long way toward simplifying them in our operations.

We use one grade of engine oil in all our truck engines irrespective of make, type, age or condition and change that oil on a time rather than a mileage basis. During the cold weather months we, of course, use an oil of low pour test, approximately zero, but in summer we turn to a higher viscosity and pour test of the same oil generally 20 deg. above zero. There might be some advantage in using different grades of oil according to engine condition, but we believe best results are obtained by correcting wear before it reaches a point necessitating the use of a heavy oil.

Oil change should not be arbitrarily regulated by mileage, but by the service and climate in which the vehicles are employed. Grade of oil also is a material determining factor. Because of traffic conditions in New York City our truck engines are constantly running; we therefore change oil on a time basis. These trucks average 900 miles a month. In spring we put a summer grade of oil in the trucks. This is used for 3½ months, equal to approximately 3150 miles per truck, and then change to the same oil for another 3½ months, which carries us up to cool weather. We then put in a winter grade of oil and run for 2½ months, approximately 2250 miles per truck, changing at the end of that period for another run of 2½ months. This schedule gives us as good engine lubrication as we received with more frequent changes.

No one is much concerned with dilution, but everyone must guard against pollution. Even though our trucks are equipped with devices which clean engine oil constantly we believe 3½ to 4 months is as long as we can safely use engine oil without a complete change in New York City.

We agree with Mr. Frazer that parts other than the engine should be lubricated at least once a week, where pressure grease cups or such types are used, although we, because of our variety of lubrication systems, have adopted the two-week plan as the most economical. While we use only one kind of oil in the engine we use six different kinds in the balance of the truck. Four of these are used in one grade for both winter and summer; the other two are furnished in winter and summer grades. Hence we have only eight grades of oil for our general chassis lubrication requirements throughout the year.

Our chassis lubrication requires about one hour of labor per truck every two weeks, which, figured at 50 cents an hour, is equivalent to \$13 a year. Add to this \$12 for material the total cost is \$25 per truck per year.

We use magazine wick feed oil cups, both the large built-in and small attachable types. Occasional changing of wicks in both types, tightening of nuts on the attachables and replacement of the built-in type when worn (since the latter are not bushed they must be thrown away when worn) makes it questionable whether these magazines are much, if any, less expensive than pressure systems. But the magazine, at least theoretically, provides constant lubrication, which we favor, being thoroughly in accord with frequent, in fact constant, lubrication of chassis parts. The best means to accomplish this we have found is use of wicks and magazines.

We agree with Mr. Frazer that engineering design can eliminate the neces-

TURN TO PAGE 44, PLEASE

THE observations of William E. Frazer in his article "Oil Change Fuss Just a Nightmare," which appeared in the March issue of *COMMERCIAL CAR JOURNAL* and in which he stated that oil change periods receive attention out of all proportion to their value, check with my idea of that much discussed question. I also coincide with his opinion that there are entirely too many types of chassis lubricants and oiling

PHILADELPHIA ELECTRIC REDUCES FORD REPAIRS TO ONE-MAN BASIS

Time and Labor Savings Made Possible
by Devices Worked Up by Shop Force

TWO motives inspire the staff of the motor vehicle repair shop of the Philadelphia Electric Co. to think up shop ideas. The first, common to all shops, is saving time, muscular effort and mental distress of mechanics doing difficult jobs. The second, taking the form of cash and credit, arises from the company policy of rewarding employees who submit worthwhile ideas for improving service, saving time or otherwise benefiting the organization, with cash prizes awarded by juries of employees and officials. The shop force has won not only many single prizes but several grand prizes in competition with other departments.

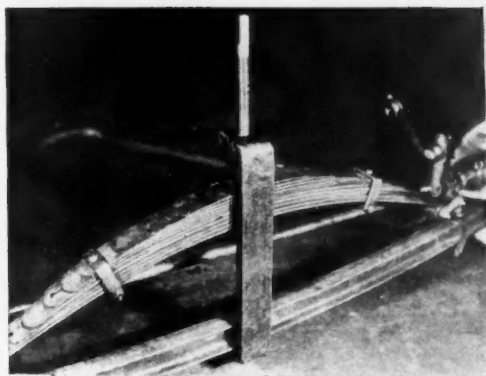
The shop is saving a lot of money by salvaging parts which otherwise would be

(Another article, dealing with this shop's salvage methods, will be published in June)

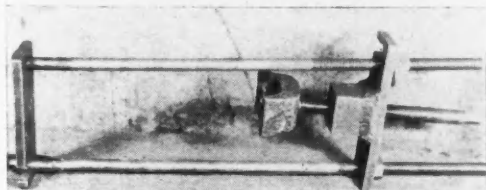
By J. W. COTTRELL

scrapped. This is accomplished by employing special jigs and devices which make the salvage operations possible or profitable.

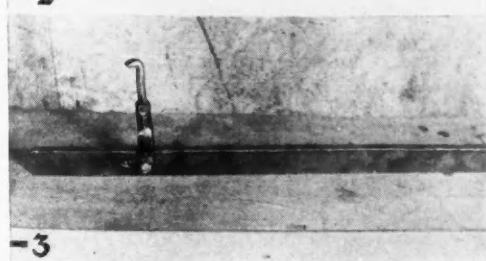
Included in the fleet are a large number of Ford cars and special tools and for this reason a large proportion of shop ideas apply to operations on this make. Two or three men may struggle with Ford A front or rear springs in some shops; here one mechanic does the job with ease, in fact, practically all Ford work has been simplified to a one-man basis.



-1



-2



-3

Fig. 1—Front Spring

This shop exchanges front-end assemblies including front radius rod, shock absorber links and arms and front spring on front-end rebushing jobs. The usual methods of installing front springs are out because the front spring is mounted on the axle, while the axle is held in a vise and there is no vehicle weight to deflect the spring.

A modified C-clamp does the trick. It is made from a heavy bar with a foot, bent over at the bottom to engage the axle, and a long set screw extending through a bend at the top, which pushes the spring down.

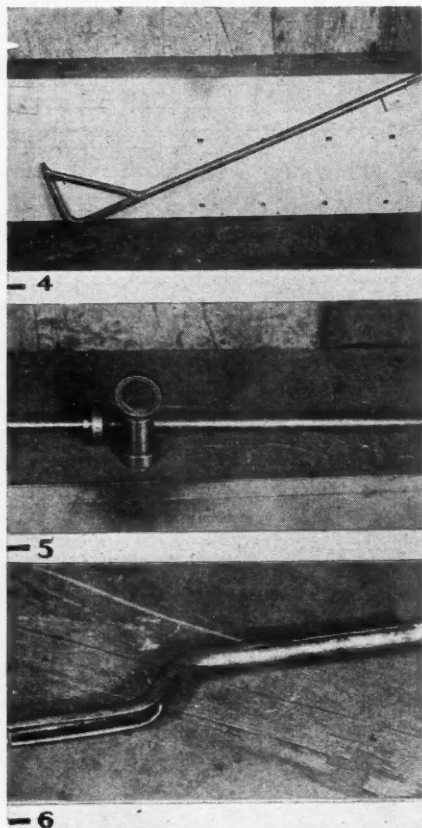
Fig. 2—Rear Spring

The most obstinate and unruly rear spring is subdued in short order by one mechanic armed with a tool shown which spreads



P. E. Mechanical Helpers

1. Front Spring Clamp
2. Rear Spring Clamp
3. Clutch Pilot Bearing Puller
4. Rear Spring Hanger Tool
5. Grease Retainer Tool
6. Valve Guide Driver
7. Two Tools for Front End Gear Jobs
8. Jig for Starter Shaft Grommet
9. Engine "Governor" Jigs



the spring ends by deflecting the spring, instead of forcing the spring ends apart. Two sections are hooked together with the top over the spring and the saddle under the axle in position shown in photograph. Two 1-in. blocks are placed on top of the axle housing and the spring is drawn down by the set screw.

The top cross bar is fastened to the rod at right and it has a cross slot over which a ring formed in the left rod is passed. The lower bar, likewise having a slot in one end, carries a block which is threaded for the long set screw which carries the saddle.

Fig. 3—Clutch Pilot Bearing Puller

Chisels, battered screw drivers and cuss words are ineffective bearing pullers and this shop uses none of them. A straight bar, with a clevis and hook made of an old brake rod, makes the job simple and easy.

Fig. 4—Rear Spring Hanger

A Model driveshaft bent at right angle and stiffened by a brace welded at each end makes the rear spring hanger tool shown in the accompanying cut. The end of the bar is formed in a square.

There is very little space to use an ordinary pry bar on spring hangers but this tool provides the necessary leverage in convenient form.

Fig. 5—Grease Retainer Tool

Rear axle grease retainers are removed and installed by a special tool made in the shop. The rod has a blunt round point with a cross hole for a

cotter pin. The collar, which slides on the rod, is of two diameters, the smaller to fit inside the retainer and the larger about the outside diameter of the retainer.

Fig. 6—Valve Guide Driver

Every mechanic in the shop has a valve guide driver in his kit. Drivers are made from sections cut from old steering gear tubes offset near the middle and cut end open on one end.

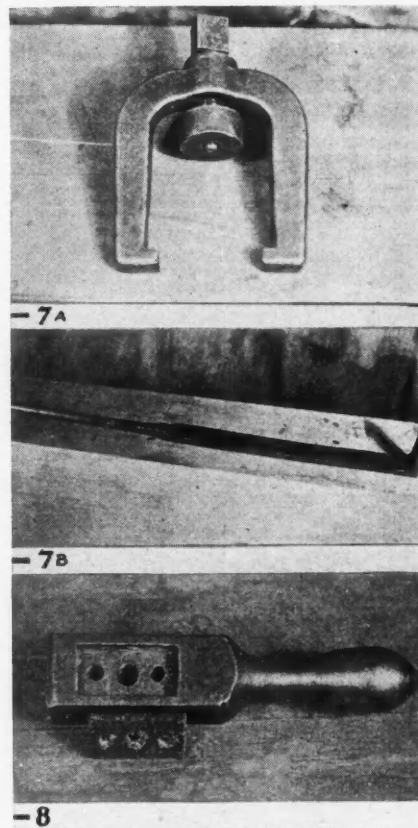
Fig. 7—Front-End Gears

Time required to install new crankshaft gear has been reduced from 2½ hours to 1 hour by use of special tools. The gear is pulled from crankshaft by a Model T transmission drum puller, Fig. 7A.

Front of the engine is raised by the special L-shaped lifting tool which takes the place of jacking the engine or hoisting with a sky hook. The lifter is also used for work on front engine support, Fig. 7B.

Fig. 8—Starter Shaft Grommet

Rattles in starter pedal shafts caused by wear of hard rubber grommets are cured by substituting pieces



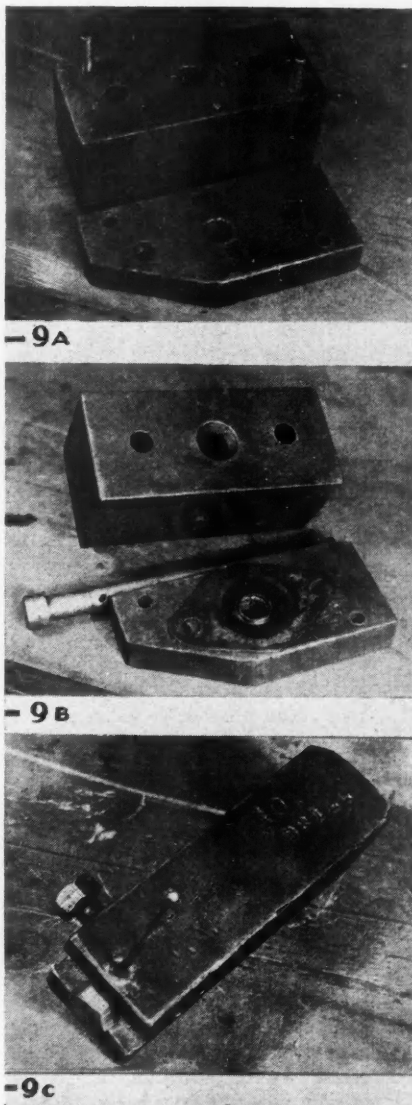
of brake lining cut from remnants of new lining roll. A drilling jig is used to hold the piece of lining and locate position of three holes. No lining-type grommet has yet required replacement.

Fig. 9—Engine "Governor"

Vehicle speed is restricted to about 40 m.p.h. by a strip of metal with a hole smaller than the intake pipe which is placed beside the carburetor flange gasket. Strips are made in a special tool which comprises a rectangular block with three holes bored on the center line and a top drilled to correspond. Holes in top and bottom are lined up by the pair of dowels and round pins driven through the holes punch out openings in the strip. The center opening of the strip is flanged by turning the block over and driving the strip into a countersink boring in the bottom of the center hole. To prevent cheating, carburetor flange screws are sealed by a railroad car type lead seal. A jig is used to drill small holes in the screws for the seal wire. The drill opening is bushed to reduce wear.

Puller Screws

Bearing and wheel puller screws made of common steel do not last long under hard usage. Threads are scored, heads mushroomed and points upset. At times it is almost impossible to remove the screws. Making new screws of chrome vanadium steel makes them better than new, gives them much longer life and makes them capable of applying increased pressure and withstanding harder blows.



HOW SHOULD TRUCKMEN CLASSIFY COMMODITIES?

A Review of the Systems Now in Use Which Points Out the Desirable Features of Each

By G. LLOYD WILSON

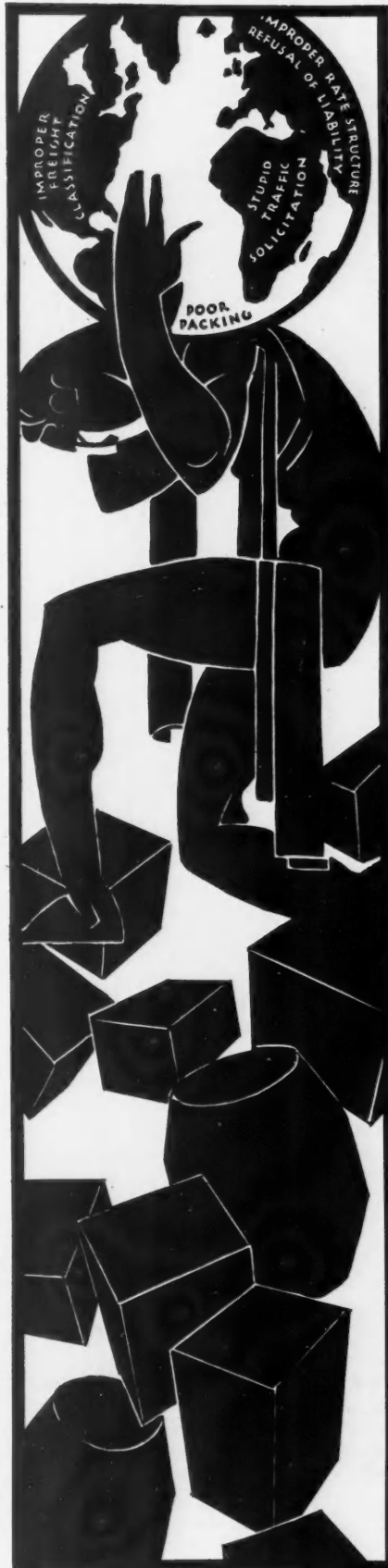
(Traffic Manager and Traffic Consultant and now Professor of Commerce and Transportation, University of Pennsylvania)

Note—The Editor will be glad to take up with Mr. Wilson any questions of problems submitted by readers.

THE bewildered but obstinate Irishman, the hero of Ellis Parker Butler's "Pigs is Pigs," is a classic figure of one caught in the technicalities of freight classification. He did not care whether the pigs in the shipment he held at his express office were guinea pigs or pigs of some other nationality. The classification and rate book called for a certain rate on pigs, and he would hold the guinea pigs until that rate was paid, no matter if the number of animals did increase at an alarming and almost unbelievable rate, and the cost of feeding the brutes and providing space for their numerous progeny born during the dispute threatened to extinguish the receipts of the station. He knew his stuff—but not his zoology.

Motor freight carriers have had a similar perplexing problem in deciding how freight should be classified into rate groups for transportation by motor truck to properly reflect material differences in the physical, commercial and transportation characteristics of the goods and to adjust the articles in classes so that rates which the traffic will bear may be assessed, without becoming enmeshed in the maze of classification technicalities which would make their arrangements too complicated to be understood by their own employees or by their patrons.

The classification of freight is the first logical step in the scientific construction of rates. It enables carriers to place all of the thousands of different kinds of articles offered for transportation into a limited number of class. Rates are then made for the



This is the fourth article of a series dealing with motor freight transportation problems

movement of goods upon the basis of these classes, and all articles within the respective classes take the same rates between the same points of origin and destination, thus greatly reducing the number of rates which the carriers would be obliged to make if rates had to be made upon every article from and to every point of origin and destination served by the carriers or their connecting lines.

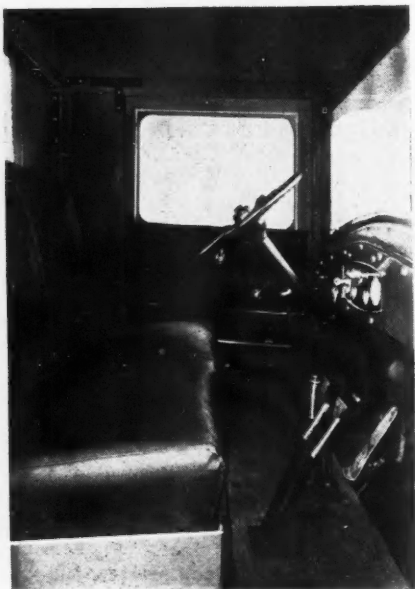
Motor freight carriers in the United States use several different systems of classification. Each system has its advocates and critics. It is obvious, however, that sooner or later the motor carriers throughout the country must determine upon a single uniform system of classification and use this system with minor modifications to suit local conditions, just as the railroads have over a period of a century abandoned the hundreds of different classification systems once in use and have adopted single uniform freight classifications in each of the three major classification territories of the United States, the Official, Southern and Western Classification Territories. The three railroad classifications are published in one volume, and are uniform in many respects, differing here and there in a minor degree between the territories. The single classification volume is known as the Consolidated Freight Classification. Many steamship lines and barge lines use this system of classification also. Motor carriers, as has been said, use a variety of classification systems.

In the first place, many motor carriers do not follow any fixed system but roughly divide goods into package and bulk freight, or "light" and heavy freight and make rates upon these crudely differentiated classes. Many of the motor express lines use this "no-system" plan, which is a crude makeshift system that obviously does not reflect differences in the commercial and transportation characteristics of the commodities. Ultimately, this makeshift practice must follow the early barge and water classifications into oblivion.

A second practice more or less common among motor express carriers is the establishment of rates upon packages shipped by motor freight regardless of the contents of the packages.

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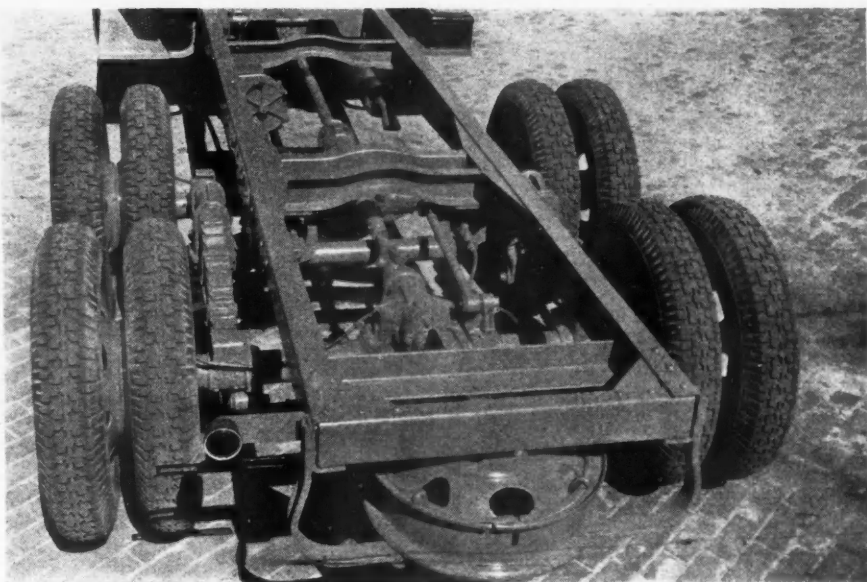
INDIANA SHUFFLES



Plenty of leg and head room is provided in the Indiana-built cab. Clear vision, properly pitched seat and back with pneumatic cushions are features. Full length door hinges are used

How Indiana Stacks Units in Its Two New Series

MODEL	85	85DR	95	95DR	95SBT150	95SW75
Gross weight.....	10,000	11,500	12,000	15,000	20,000	20,000
Price.....	\$885	\$1190	\$1095	\$1275	\$1675	\$1735
Engine, make.....	Her JXB	Her JXB	Her JXC	Her JXC	Her JXC	Her JXC
size.....	6-3 1/2 x 4 1/4	6-3 1/2 x 4 1/4	6-3 1/2 x 4 1/4	6-3 1/2 x 4 1/4	6-3 1/2 x 4 1/4	6-3 1/2 x 4 1/4
H. P.	68@2800	68@2800	68@2800	68@2800	90@2500	90@2500
Transmission, make.....	B-L 224	B-L 325	B-L 224	B-L 224	B-L 224	B-L 224
mounting and speeds.....	U4	U5	U4	U4	U4	U4
Rear axle, make.....	Timken	Wisconsin	Timken	Wisconsin	Timken	Timken
wheels driven.....	2	2	2	2	2	4
drive.....	bevel	double red.	bevel	double red.	bevel	worm
ratio.....	5.66:1	5.98:1	5.85:1	6.66:1	7.4:1	7.4:1
Frame.....	7 1/2 x 2 1/2 x 1/2	7 1/2 x 2 1/2 x 1/2	7 1/2 x 2 1/2 x 1/2	7 1/2 x 2 1/2 x 1/2	7 1/2 x 2 1/2 x 1/2	7 1/2 x 2 1/2 x 1/2
Spring, front.....	37x2 1/4	37x2 1/4	37x2 1/4	37x2 1/4	37x2 1/4	37x2 1/4
rear.....	54x2 1/2	54x2 1/2	54x2 1/2	54x2 1/2	44x4	47x3
Tires.....	6.50/20	6.50/20	32x6	7.50/20	32x6	32x6



This Indiana Model 95 SW75 differs from Model 95 SBT150 in that power is applied at both rear axles through worms. The latter six-wheeler is driven by a spiral bevel gear in the forward axle only. The rears of both these models are of Timken make

TWO new low-price series of six-cylinder trucks are the latest bid for 1932 business by the Indiana Motors Corp., which organization is now utilizing the branches and dealers of the White Co. under a contract sales agreement. Through this sales agreement with the Indiana corporation it will now be possible for the White Co., which heretofore has dealt solely with a product in the upper price bracket, to offer its sales organization an opportunity for wider sales outlets.

These new Indiana trucks, known as the 85 series, listing from \$885 up, and the series 95 ranging from \$1,095 up, are available in 10,000, 12,000, 15,000 and 20,000 lb. gross weight capacities.

There are two models in the 85 series, Model 85 and Model 85DR. Model 85 is an oversize 1 1/2-ton truck with an allowable gross weight of 10,000 lb. Designed for fast economical delivery in any vocation this model is built in five wheelbases, namely, 141 in. standard; 132 in. optional; and 155, 169 and 186 in. optional at extra cost. The unit is powered by a 3 3/4 x 4 1/4-in. Hercules Six having displacement of 263 cu. in. and

developing 68 hp. It is equipped with a four-speed Brown-Lipe transmission, Timken 5.66:1 full-floating bevel rear axle, hydraulic brakes and 6.50/20 balloon tires. Model 85DR, with a gross weight rating of 11,500 lb. and listing at \$1,190, has the same major specifications as Model 85 but differs in the use of a five-speed transmission, double reduction rear axle, helper springs and 316 sq. in. of brake lining area instead of 249.

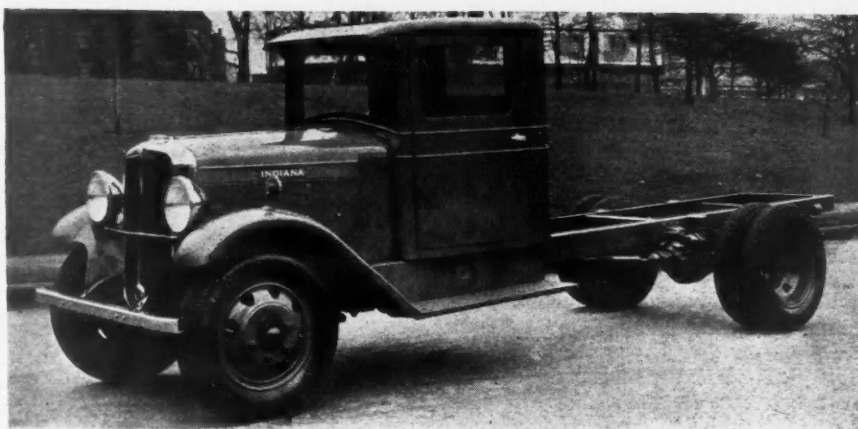
Four models make up the 95 series, two four-wheel two-wheel drives, one six-wheel two-wheel drive, and one six-wheel four-wheel drive, ranging from 12,000 to 20,000 lb. in gross weight capacities. Except for rear axles, brakes, frames, springs and tires the major specifications of all four models of this series are the same. The engine employed is a 3 3/4 x 4 1/4-in. Hercules Six, having displacement of 282 cu. in.

and developing 90 hp. at 2500 r.p.m., mounted in unit with a four-speed Brown-Lipe 224 transmission, one of the new interchangeable series. A five-speed Brown-Lipe 325 is available at extra cost if desired. Gasoline is fed by a Stewart mechanical pump from a 16-gal. tank mounted under the driver's seat to a Zenith carburetor equipped with a United air cleaner. Ignition is by battery with distributor and coil.

Models 95 and 95DR, the four-wheel jobs, differ from each other in axle type and tire size. They are offered in five wheelbases, 141-in. standard, and 132, 155, 169 and 186 in. optional. The frames of these two models are of 7 7/16 x 2 1/2 x 7/32-in. pressed steel. Springs are semi-elliptics, 37 x 2 1/4 in., 11 leaves in front and 54 x 2 1/2 in., 13 leaves, rear. Service brakes are four-wheel hydraulic, expanding

UNITS TO FIT JOB

Series 85 and 95, Listing from \$885 Up, Give White Co. Sales Opening in Low Price Bracket



Indiana's new snappy looking 1 1/2-ton six, Model 85, lists at \$885. It is powered by a 68 hp. 3 7/8 x 4 1/4 in. Hercules and is offered in five wheelbases, 141, 132, 155, 169 and 186 in.

in 16-in. gun-iron drums, while the parking brakes are of external type on the transmission.

Model 95, priced at \$1,095 and rated at 12,000 lb. gross, however, is fitted with a Timken single reduction spiral bevel, full-floating rear axle, with a standard gear ratio of 5.83:1 and optionals of 6.60 and 4.86:1. Standard tire size is 32 x 6, eight-ply single front and dual rear. Model 95DR, designed to carry a greater load as shown by an increase in its vehicle gross rating to 15,000 lb., is equipped with a Wisconsin double reduction 4916L rear axle, having a standard reduction of 6.66:1. Optional ratios of 5.54, 6.06, 7.36 and 8.17:1 are available. Balloon tires, 7.50/20 single front and dual rear, are standard.

The other two models of the 95 series are six-wheelers. They are identical except for tandem rears, Model 95SW75 being equipped with a Timken tandem worm with drive on both axles, and Model 95SBT150 with a Timken tandem with spiral bevel drive on the front axle only. Standard gear ratios are 7.4:1.

Both these models are rated at 3 tons, carrying a maximum gross weight rating of 20,000 lb. They are avail-

able in two wheelbases, 168 in. standard and 186 in. optional at extra cost. Service brakes are six-wheel hydraulics amplified by vacuum boosters and fitted with molded lining. They expand in 16-in. gun-iron drums. The external type parking brake is on the rear of the transmission. Eight-ply, 32 x 6-in. tires are standard, although options up to 7.50/20 are available.

Crown front fenders, running boards with splash shields, channel bumper, electric lighting and starting equipment, oil gage, heat indicator, ammeter, dash light, air cleaner, speedometer, rear-vision mirror and spare wheel are among the items of standard equipment.

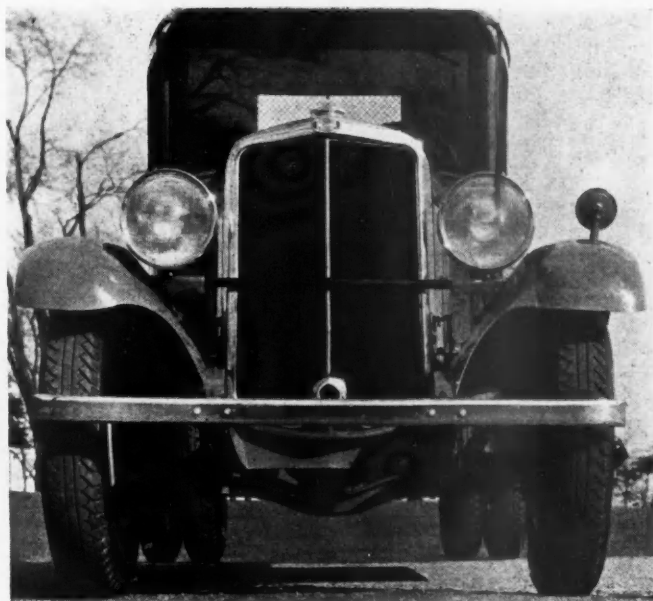
Indiana de luxe cabs, built in the Indiana plant, are furnished at extra cost. The features of the cabs are sedan doors with drop-windows operated by substantial crank mechanism,

one-piece windshield full ventilating, automatic windshield wiper, air cushions with double-decked springs upholstered in imitation leather.

White Model 618 3 to 4 Tonner

WHITE has added Model 618 rated at 3 to 4 tons and having an allowable gross weight rating of 18,000 lb. to its line. It lists at \$3,600, which is \$1,050 lower than Model 621, also a 3 to 4-ton truck. The new unit is equipped with a smaller engine and slower rear axle, permitting a road speed of 35 m.p.h. A comparison of specifications (see page 70 of this issue) further reveals that Model 618, among other things, is equipped with a 5-speed transmission against a four in Model 621; a double reduction 8.15 rear axle against a 6.33 single reduction bevel rear and an 8 x 3 3/4 x 1/4-in. frame against 7 15/16 x 2 15/16 x 7/32-in.

The engine in the new White is a seven-bearing White Model 14CB 3 3/4 x 4 1/2-in. six, developing 77 hp. at 2400 r.p.m., mounted in unit with a White single plate clutch and 5-speed transmission. Four-wheel internal hydraulic service brakes and internal parking brakes mechanically applied on rear wheels are standard. Steering is by cam and lever gear and 9.00/20 tires on cast steel wheels are regular equipment. Appearance is greatly enhanced by a polished cast aluminum radiator shell and graceful crown fenders. The model is offered in five wheelbases, 136, 152, 166, 186 and 206 in., the shortest and longest at extra price. While 8-in. frames are standard, two of the long wheelbase jobs have 9-in. frames.

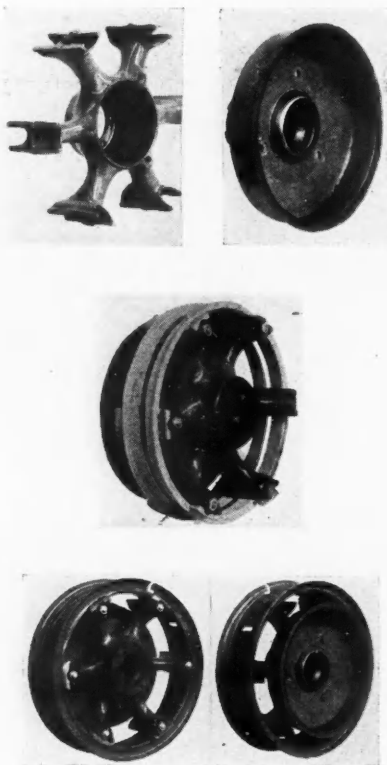


Front end of the Indiana 85 presents a striking appearance. Graceful contour of the deep-faceted radiator contributes greatly to the pleasing effect

CLARK DRUMS AND HUB ARE ONE

A NEW metal spoke wheel in which the drum and hub are integral, felloeless single and dual wheel spiders are interchangeable, single tire operation on a dual wheel is practicable and various size and type rims may be employed, is being marketed by the Clark Equipment Co., Buchanan, Mich. This felloeless wheel consists of two parts: a hub and brake drum of electric furnace iron cast integrally and a malleable hollow spider. The spider is pressure mounted on the hub and the rim directly on the ends of the spokes. Driving and brake torque are taken entirely through the malleable wheel spider. The open construction permits free and sufficient passage of air around the tire and brake drum. The brake drum is bored out at the same time seats for the bearings in the hub are machined. This construction assures a common axis and eliminates the possibility of the drum "running out." Upon the facts that the brake drum must run true with the hub and that electric furnace iron is used in the drums, long life for both drum and lining is claimed. The maker also points out that the wheel being without felloe, its weight is relatively low and that because the weight thus eliminated is at the rim, the moment of inertia (or flywheel effect) is materially reduced.

A complete view of a dual rear wheel



Top: Spider and integrally mounted hub and drum. Center: Dual rear wheel with hub pressed in place and two spacer rings. Bottom: Dual rear wheel mounted with special lugs to take a single tire. Tread is not affected

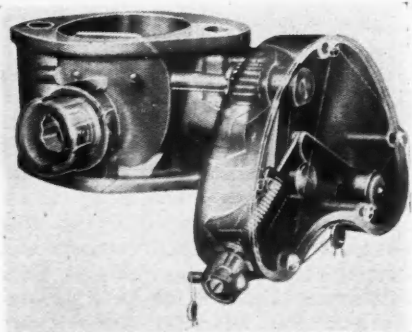
with hub pressed into place, loose inner and outer clamps, bolts for drawing up and two spacer rings mounted on the spider in the position they will assume when the rims are in place, is shown in the center illustration. To mount rims, nuts and clamps are taken off the outside and both spacer rings removed. The inside rim is then placed in position and the inner spacer placed against shoulder on spoke ends to hold inner rim in place. The outside spacer ring follows next, being applied in the opposite direction (flange side towards the operator). After the outside rim is mounted against the second spacer, outer clamps are placed on the bolts, nuts applied and tightened uniformly with a wrench furnished for the purpose.

The wheels are so designed that a wheel spider for a single tire and one for a dual tire are interchangeable on the same hub. Whether a single or dual tire spider is fitted, location of load with respect to wheel bearings is substantially the same. Application of a single tire on a dual rear wheel while on the road has been made an easy task. This is accomplished by removing the clamps, bolts, nuts and spacer rings furnished as original equipment with the dual wheel and replacing them with two special clamps and a corresponding shorter bolt.

HANDY

HANDY GOVERNOR CORP., Detroit, Mich., has developed a new model which is more sensitive and better sealed than prior types which it is designed to replace. The governor valve shaft is mounted in a needle-type roller bearing specially developed for the purpose, which gives promptness of response.

In the new model not only the speed-adjusting screw but also the studs or bolts by which the governor is secured to the manifold are sealed against tampering. For truck owners who may desire to make frequent changes of speed adjustment a lock-and-key protection is provided instead of the seal.



At left: New Handy governor with needle throttle shaft bearing and double seal

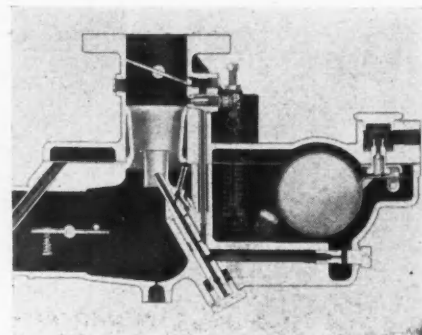
At right: Stromberg type SF carburetor which is entirely sealed from dirt

STROMBERG

A NEW carburetor designed for truck, tractor and similar heavy-duty service is now in production at the South Bend plant of the Bendix-Stromberg Carburetor Co. Designated "SF" type, the carburetor is made in five sizes: 1 to 2-in. diameter, all of single-barrel construction.

The carburetor incorporates the characteristic Stromberg double venturi principle, together with a plain tube airbled jet and no auxiliary air valve. The float chamber is on the side to lessen variation in float level on hills and turns. The float is of hinge type with fuel inlet from above.

All air bleeds and float chamber vent are taken through the air horn to prevent dirt entering passages.



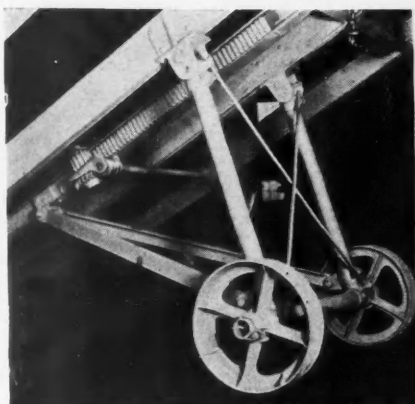
STOUGHTON STRETCHES LINE WITH CUSHIONED TRAILERS

THE Stoughton Co., Stoughton, Wis., adding a trailer division to its transportation equipment manufacturing business, presents a line of trailers designated as the Stoughton cushioned trailer because fifth wheels are cushioned in rubber. The line includes semi-trailers with four member straight frames, kick-up frames, drop-frame van and tank types, and removable pressed steel platforms as well as non-reversible four-wheel trailers.

Rubber mounting of fifth wheels, shown in two of the accompanying photographs, insulates the upper plate from metal-to-metal contact with the tractor chassis. The assembly comprises only eight movable parts. The upper plate is attached to a vertical bracket by two rubber cushions which measure approximately 4 x 4 x 25 in. These rubber blocks are encased in a steel housing which forms the fifth wheel mounting bracket. This construction makes the trailer connection non-rigid, allows an additional 5½ in. of deflection, measured at outside of frame, and absorbs shocks of coupling, driving and braking.

The king pin lock works automatically, latch pawls holding the pin in position by contact over more than ninety per cent bearing surface. The pawls are held in position by a wedge shaped assembly.

Another feature of Stoughton trailers is the improved "Ezelift" support which makes it possible to lift supports 19 or 20 in., up between frame members if desired. Power to raise or



A worm gear operated rack and pinion elevate the semi-trailer support

lower the support is provided by a rack bar which slides in a steel channel by motion of a worm gear driven steel pinions. Supports are automatically locked in position at all times by worm gear action.

Stoughton trailers are equipped with standard Timken axles carrying Lockheed hydraulic, Bendix mechanical or Warner electric brakes operated by B-K boosters or Westinghouse air systems. Radius rods are bronze bushed. Demountable wheels, interchangeable with truck wheels, will be furnished if requested when order is placed.

Junior model of the trailer line is Model J-23, straight frame semi-trailer, designed for use with 1½-ton trucks. It is rated 3 tons, has frame

14 ft. x 84 in. 5 in. deep and carries 30 x 5 or 6.00/20 dual tires. Warner electric brakes list at \$150 extra. Chassis price is \$380.

Model K 34 is a special semi-trailer, with two member kick-up frame for light 1½-ton trucks, which is priced \$435 without supports. Rating is 4 tons, frame 16 ft. by 41 in. with 5-in. side rails. Standard tires are 32 x 6 truck type or 7.00/20 duals in both cases. Warner electric brakes list at \$150, hydraulic with B-K \$175.

Models K-35, K-56 and K-78 are of two-member kick-up frame type, rated 4, 6 and 8 tons respectively. Frame lengths are 16, 18 and 20 ft., widths 41, 42 and 42 in. in turn. Price of K-35 with 7.00/20 dual balloons is \$460, Model K-56 with 34 x 7 high-pressure or 8.25/20 duals is quoted \$710 and Model K-78 carrying dual 36 x 8 x 9.75/20 tires is \$885.

The V series includes V-305, V-506 and V-708, of drop-frame design, rated to carry 4, 6 and 8 tons. Platforms may be placed either crosswise or lengthwise. Prices are: V-305 with 6.00/20 duals \$625, V-506 with 34 x 7 or 8.25/20 duals \$775, V-708 carrying 36 x 8 or 9.75/20 \$1,225.

Tank-type models are T-315, T-516 and T-718. Prices are: T-315 \$440 with 7.00/20 duals, T-516 \$730 with 34 x 7 or 8.25/20 duals, and \$925 for T-718 on 36 x 8 or 9.75/20 dual tires.

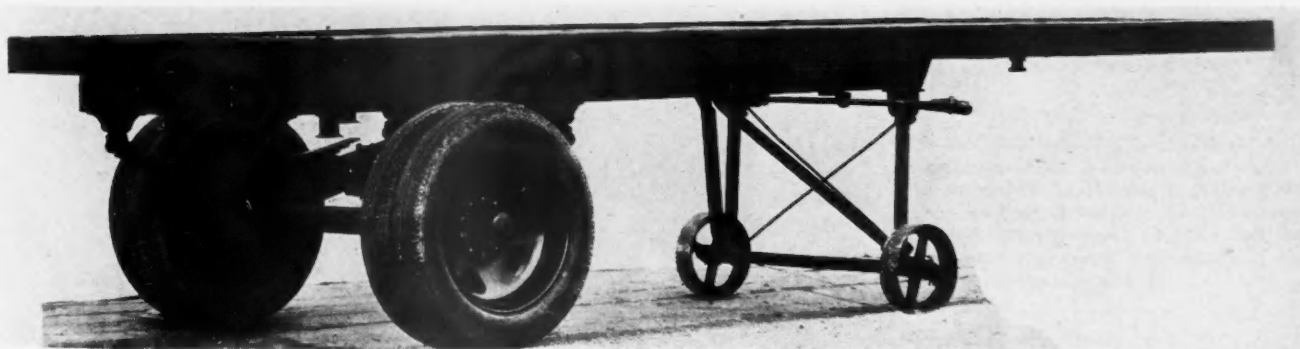
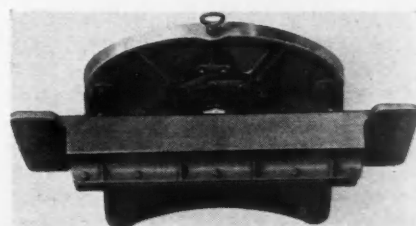
Trailer chassis prices do not include supports. They, as well as extra frame lengths, brakes, oversize tires and fifth wheels are at extra cost.

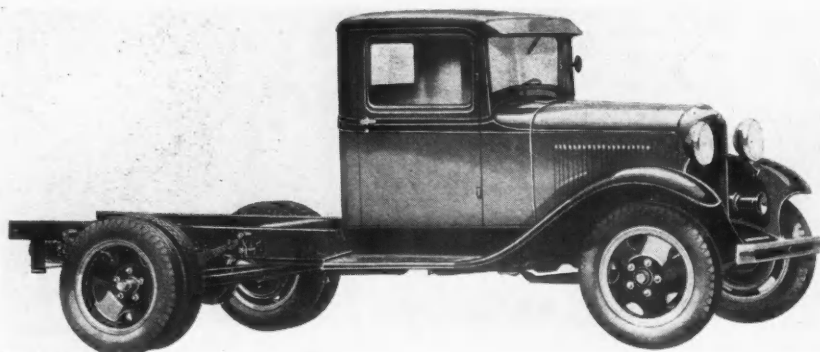


Left: Lower half of cushioned fifth wheel

Right: Rubber cushion is contained in housing

Below: Semi-elliptic springs with helpers carry the load on straight frame semi-trailer





Cab of new Ford truck has slanting windshield and rear window of safety glass. Floor boards and pedal holes are sealed with rubber. Cushions are air-bound. Rear springs are semi-elliptic instead of cantilever type

FORD STICKS MORE POWER AND LOAD SPACE IN TRUCK

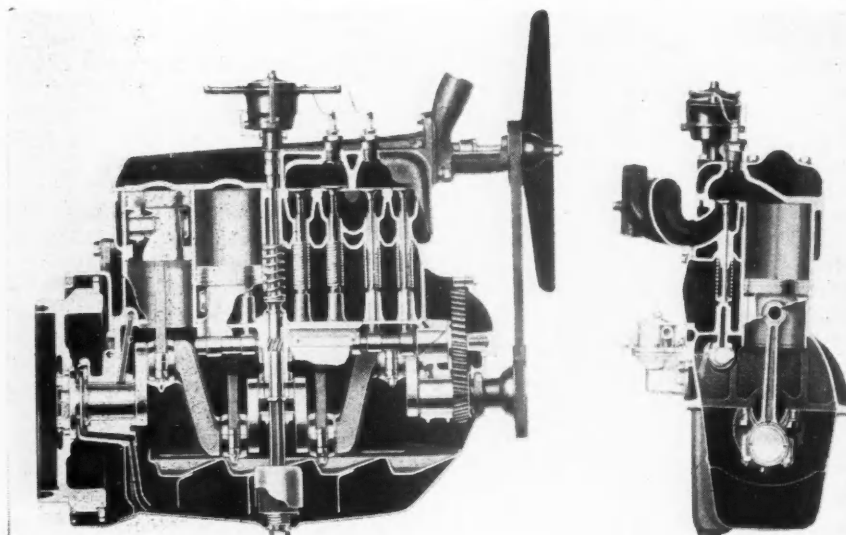
ALTHOUGH the new Ford truck attracted less attention than the V-8 engine and passenger cars at the time of the company's announcement of the new lines the truck, apparently, is ahead of the passenger cars in actual production.

Major changes in the new truck, compared with the Model AA, as revealed in the April issue, include an increase in power from 40 to 50 hp., use of semi-elliptic rear springs with helpers optional, in place of cantilevers, frames are heavier, measuring

7 x 2 $\frac{3}{4}$ x 7/32 instead of 6 x 2 $\frac{3}{4}$ x 7/32 in., and back of cab to end of frame dimensions are approximately 13 in. longer. Gasoline tank is now of 17-gal. capacity and placed under driver's seat. The rear axle is heavier and wheel bearings are beneath load center of dual wheels. Brake drums are made of cast alloy iron.

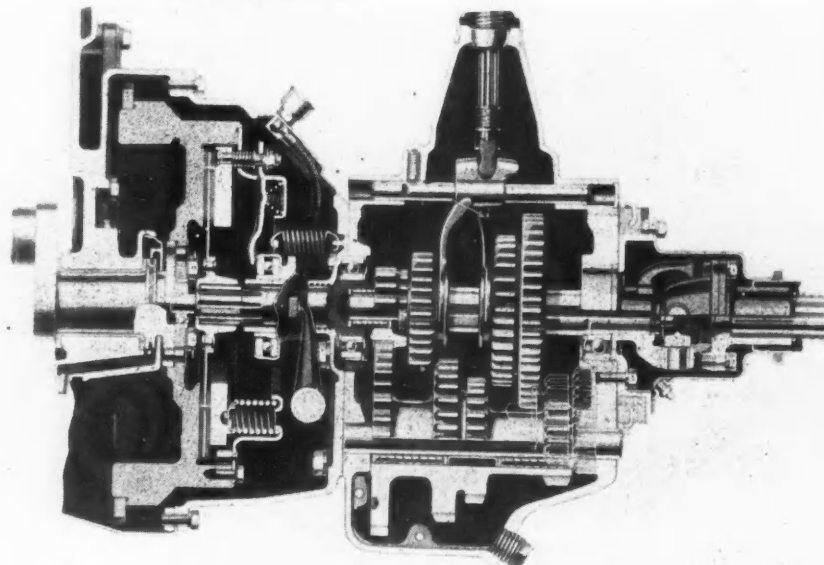
The new engine is mounted in rubber at two points in front and a large rubber trunnion at the rear of the unit-mounted four-speed transmission. Both crankshaft and camshaft are made of carbon manganese steel. Three crankshaft bearings are all 2 in. in diameter and are 2, 2 and 3 in. long for front, center and rear respectively. Piston pins are 1 in. in diameter and are full-floating.

Front spring is of transverse type, as before, and it measures 31 x 2 $\frac{1}{4}$ in. Rear springs are 50 x 2 $\frac{1}{2}$ in., with 13 leaves standard and 12 leaves on panel jobs. Tires are 6.00/20 six-ply on front and 32 x 6 eight-ply high pressure on rear, dual rear wheels with 6.00/20 tires being available for \$25 additional.



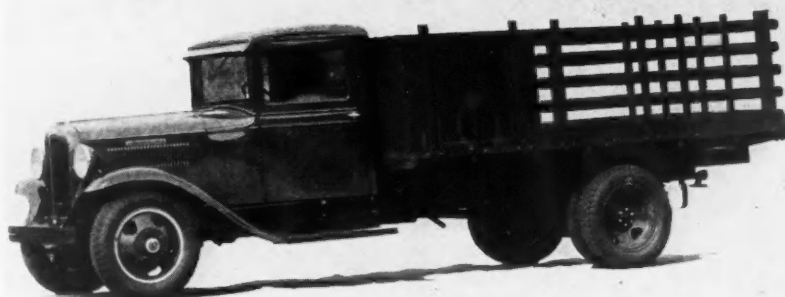
Above: Sections of improved four-cylinder engine. Spark advance is automatic and lubrication is by pressure to main and camshaft bearings with splash to other parts. Gasoline pump is mounted on right side of engine, replacing the former gravity feed

At right: A second universal joint, shown at right, has been added to the coupling shaft, making it possible to remove shaft without disturbing either transmission or rear axle. Rubber trunnion mounting of unit powerplant is shown attached to rear face of transmission case



Reo 1½-Ton Sixes

Model	1B	1D
Wheelbase	140 in.	164 in.
Price	\$745	\$785
Engine	Gold Crown	
size	6-3/8 x 5	
displacement	230 cu. in.	
hp.	68 @ 2800 r.p.m.	
comp. ratio	5.31:1	
Transmission	4-speed	
Brakes, service	4-wheel hydraulic	
parking	transmission	



Reo's new 1½-ton six lists at \$745

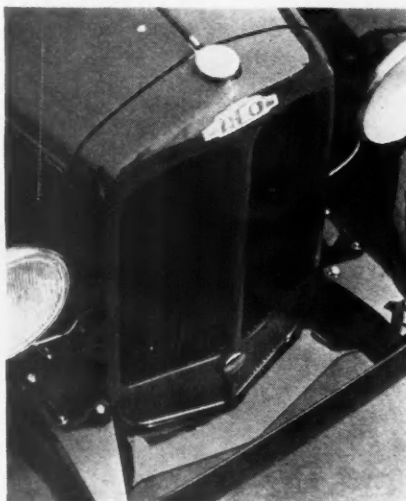
REO POWERS NEW 1½-TON WITH NEW GOLD CROWN SIX

THE latest addition to Reo's line of Gold Crown engines, a new 3½ x 5-in. six, is the outstanding feature of the company's new 1½-ton Speedwagon. Gold Crown engines formerly were available only in 2 to 3-ton Reo trucks. The new truck model now gives Reo a four and a six-cylinder model in the 1½-ton classification.

This new model comes in two editions, Model 1B priced at \$745, and Model 1D listed at \$785. They differ only in wheelbase, the former having a wheelbase of 140 in. and the latter 164 in. In fact, the new six with the exception of the engine is in most respects similar in specification to Reo's present Model 1A 1½-ton four.

The new Gold Crown engine has displacement of 230 cu. in. and is rated at 68 b.hp. at 2800 r.p.m., with maximum torque of 152 ft.-lb. over a wide speed range from 1000 to 2000 r.p.m. Compression ratio is 5.3:1. In line with present-day practice it is fitted with a Zenith downdraft carburetor fed by an AC fuel pump.

Among details contributing to long engine life claimed by the company are a chrome-nickel alloy cylinder block, liberal main and connecting rod



A V-type radiator shell with vertical grille contributes to smart front-end appearance of Reo 1B & 1D

and piston-pin bearing areas and full-pressure lubrication. Seven close-limit, interchangeable shimless main bearings carry a 2 5/16-in. crankshaft. These bearings have total

length of 12 in. and bearing surface of 87.12 sq. in., more than ample for the heaviest loads the engine will be called upon to sustain. Oil is delivered to crankshaft, connecting rod and camshaft bearings entirely through drilled ducts. Internal oil pipe lines are not used. The pump is of the gear type and submerged.

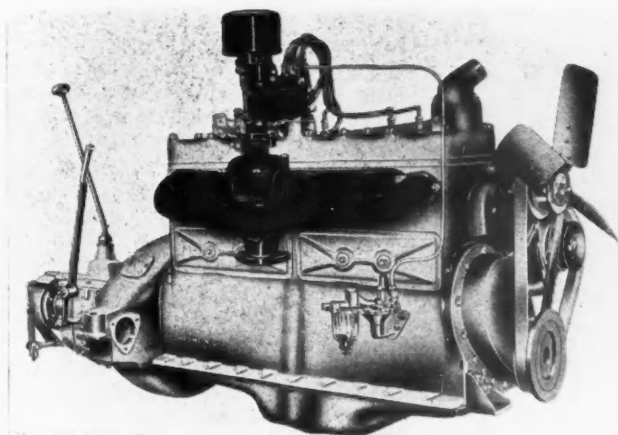
Intake valves are of chrome nickel and exhaust of silchrome alloy, operated by chilled-head, mushroom-type lifters. Camshaft is driven by silent chain. Pistons are of aluminum alloy.

The transmission and axles, like the engine, are Reo-built. The four-speed transmission provides the following gear ratios: 1.86 in third; 3.55 in second; 6.61 in first, and direct. The rear axle is of full-floating, spiral-bevel gear type with straddle-mounted pinion. Ratios of 5.28 on the 140-in. wheelbase model and 5.83 on the 164-in. are standard. In addition to these a ratio of 6.6 is available where service conditions justify.

Easy riding is assured by exceptionally long, flexible springs, 40 x 2 in. front and 50 x 2½ in. rear. Steering is by cam-and-lever-type gear.

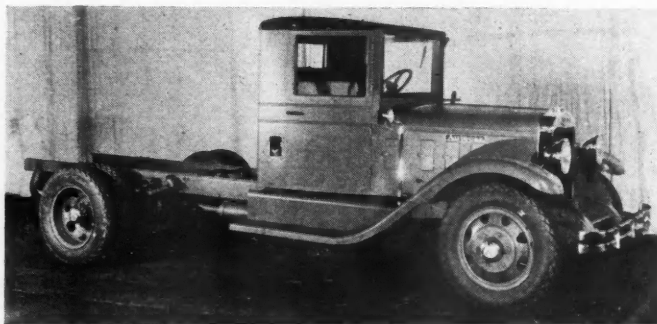
In common with Reo practice, brakes are of the two-shoe, hydraulic, internal type with master cylinders of the self-replenishing type. Contacting 14-in. drums in front and 15-in. rear, a total braking area of 246 in. is provided. The parking brake is of the external type with band contacting on an 8-in. drum mounted at rear of transmission.

The value of appearance was not overlooked in design of this model. From an attractive pressed steel, V-type radiator shell with vertical grille and sweeping one-piece fenders to the cab and on to the end of substantially braced 7-in. frame, this new super-powered Reo Speedwagon possesses eye appeal and creates an impression of power and sturdiness.



A new member of Reo's line of Gold Crown engines. It develops 68 hp. at 2800 r.p.m. Gasoline line from pump is carried up in front of the engine and forward of exhaust manifold, then back to downdraft carburetor

AUTOCAR - FUHRMAN - ANTHONY



Autocar 1 1/2-ton R lists at new low of \$2,250 and comes in three wheelbases

Autocar 1 1/2-Ton Model R

AUTOCAR MODEL R, latest addition to the light end of that company's line, succeeds present Model A in the 1 1/2-ton classification. Model A, however, in releasing its position to the new arrival, has been changed to permit rating in the 1 1/2 to 2-ton class. The price of Model A remains at \$3,200 although the transmission is now a 5-speed unit; side rail dimensions have been increased to 8 x 1/4 x 3 in., a Handy governor is specified, a G&O radiator is employed and a heavier Timken front axle replaces the old.

Model R, the new 1 1/2-ton six, lists at \$2,250 and is offered in three standard wheelbases—159, 171 and 180 in. The engine is an Autocar 3 3/4 x 4 3/4-in. six, developing 75 hp. at 2400 r.p.m. It is mounted in unit with a Long clutch and a 4-speed Brown-Lipe transmission Model 234, one of the new interchangeable series.

Final drive is through an Autocar Model SA spiral bevel rear axle having standard gear reduction of 5.22 and an optional of 6.12. Service brakes are four-wheel hydraulic operating in cast-iron drums, while the parking brake is of the external type mounted on the transmission.

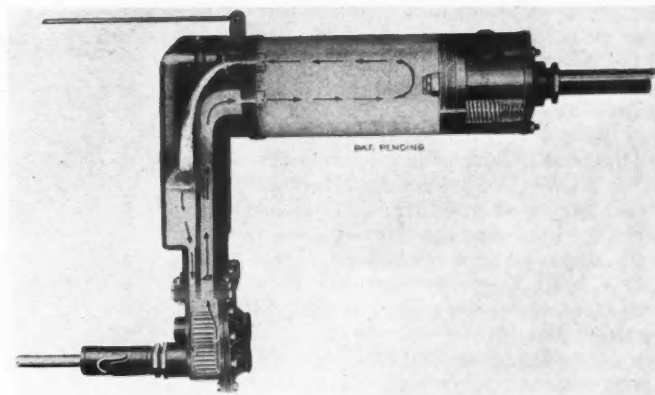
Anthony Dump Body Shaker

A DEVICE that automatically shakes materials clinging to dump body sides loose after the body has

been raised to full discharge angle is offered by the Anthony Co., Streator, Ill. The unit is known as an Automatic Shaker and is furnished on all Anthony Pipeless Hydraulic Hoists, if desired, at no extra cost.

The shaker, which is built within the hoist cylinder (see lower right end of cylinder) consists of a poppet-

Anthony Shaker is built in piston of hydraulic hoist. Cylinder pressure is intermittently reduced by poppet valve action of device

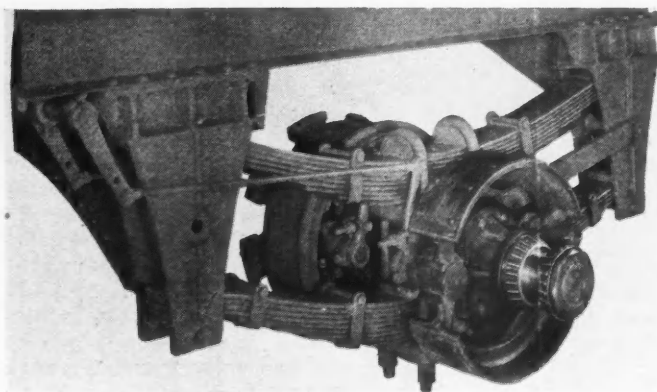


type valve, the stem of which strikes the cylinder head when the piston reaches full stroke. As the piston travels slightly further from this point, a port in the piston opens, letting oil pass to the other side of the piston and back to the oil sump through a breather. Cylinder pressure then drops and the piston backs, which closes the port. Opening and closing of the stop valve at regular intervals causes pressure in the cylinder to al-

ternately drop and build up, which, of course, moves the piston back and forth and shakes the body. Degree of shake is controlled by varying the engine speed and it may be stopped entirely by disengaging the power take-off.

Fuhrman Twin-Axle Trailer

THE new twin axle for semi-trailers recently perfected by the Fuhrman Trailer Co., Canton, Ohio, is quite a departure from the conventional one-piece axle with dual tires. Instead of one axle, Fuhrman uses two 31-in. tubular axles, one on each side of the trailer. Each axle is mounted between two semi-elliptic springs mounted above each other. The springs are not shackled but are slip-assembled



Wheels are mounted on both ends of a stub axle supported by two semi-elliptic springs in the new Fuhrman semi-trailer

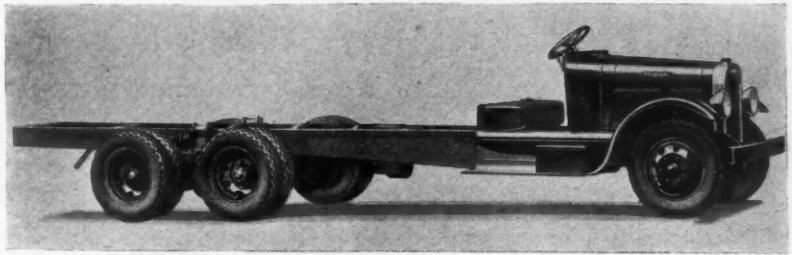
into two brackets attached to the under side of the frame side rail. Radius rods, which may be pivoted to either front or rear bracket, preserve axle position and alignment. The axle is carried in a spring chair which is U-clamped between the two springs. Wheels, mounted on both ends of each stub axle, are free to rotate like front wheels and, if desired, brakes can be placed in both of them. This design permits tires to conform to road inequalities and distributes load equally between both tires. Irregularities are taken up by twist of the springs, which are designed to take care of differences up to 3 in. in approximately 30-in. tire centers. If one tire goes flat, the other takes the load.

Another feature of this construction is the fact that spring centers are wider. In a trailer with a width of 96 in. outside, the Fuhrman twin axle permits a spring center distance of 60 in. against 38 in. in a conventional trailer with 10.50 dual tires. This reduces sidesway of topheavy loads and thereby lessens overload and excessive side wall pressure on tires.

FEDERAL - TIMKEN BENDIX - G.M.T.

Federal 6-Ton 6-Wheeler

A BIG brother has been added to Federal's line of 3 to 5-ton six-wheelers. It is a six-tonner designated as Model T10SW. Like the other Federal single-drive six-wheelers, the driving axle of the new unit is placed at the rear with the dead axle ahead. The new unit carries a gross rating of 28,000 lb. and is built in three wheelbases, 188, 206 and 224 in., listing at \$3,895, \$3,945 and \$4,045 respectively. Power is furnished by a Continental Model 18R 4 x 4½-in. six, developing 80 hp. at 2200 r.p.m., mounted in unit with a Brown-Lipe plate clutch and seven-speed Brown-Lipe transmission Model 607. It has 20 x 7-in. ventilated disk wheels with 34 x 7-in. tires, duals on all four rear wheels. The rear axle is a full-floating bevel drive Timken with a standard gear ratio of 7.8:1. Two



The last axle drives this new Federal six-wheeler

14 ft., maximum load-carrying ability is obtained by placing 60 per cent of the body and payload weight on the trailer axle. Five pressed-steel cross-members of integral gusset type are used in the frame assembly.

Shackles, shackle bolts, bushings, wheels and brake parts are interchangeable with the regular T-18 truck parts. Springs are 45 in. long

each side. A 42-in. stake and rack body or stake express body with a 2-ft. reinforced tailgate at the rear are available.

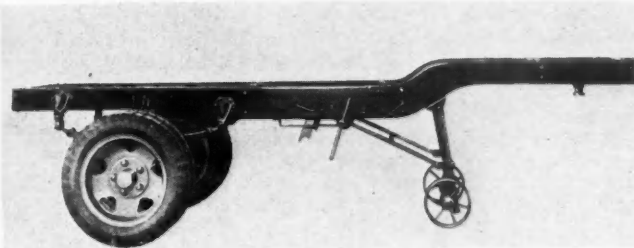
Timken-Bendix Trailer Axles

FOUR companies in the brake field, Bendix, B-K, Westinghouse and Hydraulic and the Timken-Detroit Axle Co., have joined forces in providing a line of trailer axles equipped with brakes which may be substituted for brakeless axles on trailers now in use. Demands of modern quick-moving traffic and state laws and regulations place brakeless trailers at a disadvantage, in fact thousands of them will be banned entirely this year by state laws.

Timken-Detroit Axle Co. developed a trailer type dead axle which may be equipped with any desired type of Bendix or Timken brake. Substituting the new axle for a brakeless axle under a trailer provides brakes engineered for the work.

Brakes systems used are Lockheed hydraulic, Bendix mechanical and Timken with power application by B-K vacuum booster or Westinghouse air. Brake boosters on both tractor and trailer can be operated by a valve in the brake pedal line. A relay valve applies brakes on all units in a tractor-trailer train at the same time. Boosters on hydraulic systems are coupled to master cylinder arms, on mechanical systems to cross shafts.

Air brakes may be controlled by pedal or lever or both. Air hose is coupled in much the same manner as on railroad cars. Brakes are applied by air pressure acting on a diaphragm for each wheel brake.



Wearing parts of new G.M.T. 3 to 5-ton trailer are interchangeable with those of the 1½-ton G.M.T.-18 truck

inverted semi-elliptic springs are trunnion-mounted to each side of frame above and below driving and dead axles. Fish plates on the 7½ x 3½ x ¼-in. frame are standard.

As on other Federal six-wheel models, six-wheel hydraulic brakes are provided. They are amplified by a vacuum booster and operate in cast alloy iron drums, 16 x 2¼ in. front and 17¼ x 4 in. rear. The parking brake is internal type, mounted on transmission.

All spring pins connected with the rear axles of this unit and trunnion are mounted on Federal patented Reservoir bearings, which lubricate automatically.

G.M.T. Trailer for T-18

AS a companion to its T-18 truck, of ½ to 2 tons capacity, General Motors Truck Co. announces a new semi-trailer with wearing parts interchangeable with those of the truck. The nominal capacity of this trailer, designated as Model TT-218, is 3 to 5 tons.

By using a one-piece pressed-steel frame of "fish-belly" construction with a 6-in. drop and a length of

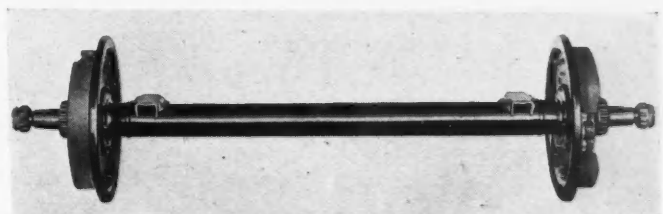
and made up of eleven ¾ x 2½-in. leaves. Power brakes are of the BK vacuum type. A parking brake, which is operated automatically when lowering the support wheels, can be supplied.

The front supporting wheels are raised and lowered by a steel cable and lever arrangement actuated by a crank at the side. It is locked in either position by a dog.

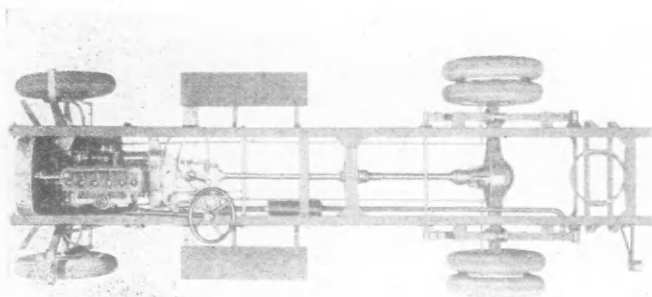
The lower fifth wheel is a GMT 24-in. type, spring cushioned, semi-automatic type. The upper fifth wheel is integral with the frame and consists of a heavy steel plate across entire width of frame, extending back to second cross-member supporting a steel bolster and hardened king pin.

Pressed-steel cross-sills, interchangeable with those on the truck, are used in the body construction. Stakes are set within the pressed-steel platform base, providing an integral rub rail on

An axle for display only—a new Timken trailer axle with hydraulic brake at left, Bendix right



STEWART DROPS TWO NEW 6'S \$200 EACH



Tail pipes of muffler on Models 42X and 43X are carried along frame to end of rear spring and discharged at angle

+ See Specifications on page 70 +

TWO six-cylinder trucks, a 1½-tonner for \$795 and a medium duty 2-tonner priced at \$995, just introduced by Stewart Motor Corp., Buffalo, N. Y., are an even \$200 lower in price than current offerings of the company in the respective tonnage classifications. The 1½-ton 42X is, in fact, listed at the same price as the 1-ton 30X, and the new 2-ton Model 43X costs just as much as the 1½-ton 40XA.

Model 42X is powered by a Lycoming SA6, 3¼ x 4½-in., 224 cu. in. displacement engine developing 62 hp. at 2800 r.p.m., which is the same engine used in Model 40XA. Both cylinder head and cylinder block are removable. Carburetor is a downdraft Zenith equipped with an air cleaner. Electrical equipment is by Delco-Remy.

Engine of Model 43X also is a Lycoming six SB with ½-in. more bore, providing piston displacement of 242 cu. in. and developing 65 hp. at 2800

r.p.m. This engine is the same as that of Model 50X, also rated at 2 tons.

Standard wheelbase of the 1½-ton Model 42X is 134 in., others available at extra cost are: 145 in. at \$40, 160 in. for \$80, and 176 in. for \$100. On Model 43X standard wheelbase is 145 in. with 134 optional without extra charge, and 160, 176 and 190 in. offered for \$40, \$80 and \$100 respectively. Frames measure 7½ x 2¾ x 7/32 in. on both models.

Unit-mounted four-speed Clark transmissions, Borg & Beck plate clutches, Spicer universals and Salisbury front axles are embodied in both.

Four-wheel Bendix Duo-servo mechanically operated brakes with front drum 14 x 2 in. and rear drums 16 x 2 in. are common to the two models.

Tires, listed in specifications table on page 70, are 6.50/20 single front and rear on the 1½-ton model. Oversize balloons and dual rear tires are supplied at extra charge. On the 2-tonner 6.50/20 front and dual rear tires are standard, and single rear tires or oversize balloons are extra.

Although both rear axles are Clark full-floating spiral bevel gear units carrying straddle-mounted pinions, 1½-in. shafts and Timken bearings, on differentials there are differences. Ratio on the 1½-ton truck is 5.6 with 6.37 optional, while 6.37 is standard on the 2-tonner, with 5.6 optional. Radius rods are available on the 2-ton job at extra cost, otherwise drive and torque are taken through rear springs.

DIAMOND T STARTS NEW LINE AT \$795

+ See Specifications on page 64 +

DIAMOND T is presenting as a leader in its line for 1932 a new low priced 1½-ton six cylinder truck. The price, which is \$200 less than that of 1½-ton Model 216 B, is by far the lowest ever placed upon a Diamond T truck and is directly in the highly competitive low-price bracket of one and one-half tonners. This new model, moreover, is but the first of a new series comprising three other models of 2-ton, 3-ton and 4-ton ratings priced far below anything before offered by this truck manufacturing company.

Model 210, as the truck is designated, is powered by the same Hercules JXA, 3¾ x 4¼, six cylinder engine which has been used in the line for more than a year. Piston displacement of 228 cu. in. and torque of 143 lb. ft. are relatively large in this classification. Horsepower rating is 60 at 2800 r.p.m. The crankshaft has seven main bearings 2½ in. in diameter. Front end drive is by gears.

Rear axle is a full-floating spiral bevel Clark B 373 E, with straddle mounted pinion. Wheel bearings are centered directly above road contact even with dual rear tires. Timken

roller bearings are employed at differential and wheel hubs. Transmission is a Warner Gear T9.

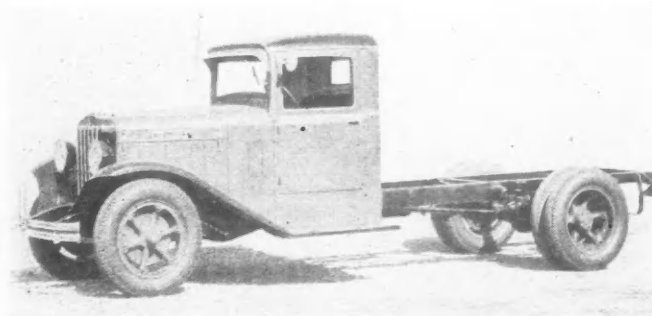
Diamond T continues in this model use of four wheel hydraulic brakes with drums of cast alloy iron.

Both front and rear springs are carried in compression type rubber bushings, eliminating 12 lubrication points. Front springs, 42 x 2 in., are shackled at the front to reduce possibility of shimmy. Rear springs measure 50 x 2½ in. and include nine leaves. Four-leaf helper springs are available as special equipment.

Standard wheelbase is 135 in., to accommodate bodies up to nine ft. in length and a special long wheelbase of 158 in. for 11 ft. bodies is available. Equipment includes steel cowl, front fenders and running boards.

Standard tires are 5.50/20 front and single 6.50/20 rear. Dual rear tires are offered as extra equipment.

Companion models of the series are Model 310, 2-ton, priced \$995; Model 410, 3-ton, \$1595 and Model 510, 4-ton, listed \$1995. Complete description and specifications of these models will soon be available, according to announcement by C. A. Tilt, president.



Model 210 truck equipped with optional dual tires, helper springs and deluxe Diamond T cab

+ See Specifications on page 68 +

THE 1932 series Model T32 Marmion-Harrington truck has more power and a wider range of gear ratios than the first T32, which was described in the July, 1931, issue. Another change is use of Wisconsin double reduction Model 1737 axle, with 1727 optional, in place of the 1627 axle.

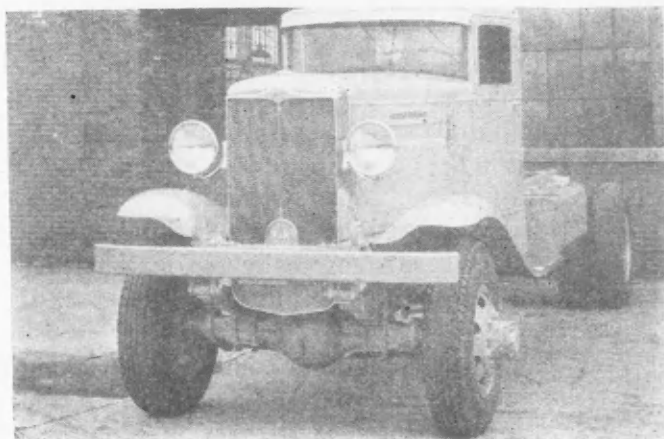
Cylinders of the Hercules HXB engine, now employed, measure 5 x 6, an increase in bore of $\frac{1}{4}$ in. over HXA previously used. The engine incorporates twin spark ignition, down-draft carburetor and oil filter.

Main transmission is a four speed Brown-Lipe 724 series in place of a 714. Forward ratios of this unit are 7.07, 3.79, 1.91 and direct. The company-made, three-speed auxiliary, which is built into the transfer case for drive to front and rear axles, provides an .739 overdrive, an almost direct ratio of 1.025 and reduction of 2.94. The combination obviously provides a total of twelve forward and three reverse speeds.

The rear axle, which is a Wisconsin Model 1737, carries Westinghouse air brakes with slack adjusters, gun iron drums and Brakebloks. Ratios are 6.33, 7.08, 7.98, 8.85, 9.975 and 11.347 on Model 1727 axle and 8.05 and 9.15 on axle Model 1737. Standard ratios are 8.85 and 9.15 respectively.

Standard wheelbase is 199 in., tractor wheelbase is 181 in., and two long wheelbases, 217 and 235 in., also are available.

MARMION-HERRINGTON T32 HAS MORE POWER



Two gasoline tanks placed outside the frame carry 150 gal. of fuel—about three drums

Rear wheel brakes are effective on front wheels, as well, through the four-wheel drive line. Hand brakes comprise two 14 in. Tru-Stop disks, each with double shoes, and these also are effective on all four wheels in the same manner.

When truck is loaded, top of frame is 42 in. from ground. Frame side rails measure $10\frac{1}{2}$ x 3 x $\frac{3}{8}$ and are made of chrome-manganese steel. Gussets are 22 x 3 $\frac{3}{8}$ in. of flange

type. Side rails are connected by X-type cross members and two 5 in. tubes.

Front springs are 52 in. long and 4 in. wide with 11 leaves, rear springs 2 in. longer and the same width and 13 leaves and rear semi-elliptic auxiliary springs measure $34\frac{1}{2}$ x 4 in. with 5 leaves.

Tires which are mounted on Budd ventilated disk wheels are 10.50/24 balloons single front and dual rear.

NEW DODGE 2-TON PRICED AT \$795

+ See Specifications on page 64 +

A SIX cylinder two-tonner priced at \$795 and a longer wheelbase companion of the same capacity for \$825 are two recent additions to the G series of Dodge Brothers trucks. Model G 43 designates the 136 in. wheelbase job and G 44 the longer, with 165 in. wheelbase.

Both models carry maximum gross rating of 10,000 lb., and this provides a payload rating of approximately 6000 lb., after deducting chassis weight of about 3000 lb. and body weight allowance of 1000 lb. With the exception of propeller shaft and universal joints G 43 and G 44 are practically the same.

The engine, $3\frac{1}{4}$ x 4 $\frac{3}{8}$ in., has the same bore and $\frac{1}{8}$ in. more stroke than that of engine in the 1 $\frac{1}{2}$ -ton Model G 30, described in the February issue. It develops 73 hp. at 3200 r.p.m. and 144 lb. ft. torque at 1200 r.p.m. The crankshaft is carried in four main bearings and includes four counterweights.

Assembled in the unit power plant

is a 10 in. dry single plate clutch and a five speed transmission. The rear axle is of full floating spiral bevel gear type with straddle mounted pinion. Chrome nickel steel tubes are pressed in and welded to an electric steel banjo housing. Standard ratio is 6.375.

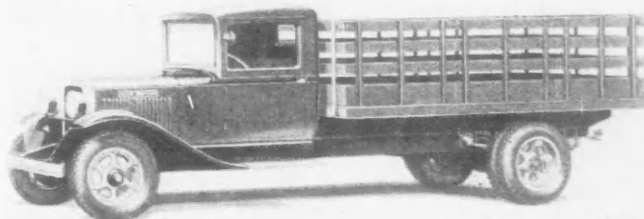
Brakes are four wheel hydraulic with shoes operating in cylinder iron drums, front 14 x $1\frac{3}{4}$ in., rear 16 x $2\frac{1}{4}$ in. Parking brake mounted on the propeller shaft is an external band 8 in. in diameter and 2 in. wide.

Propeller shaft on 136 in. wheelbase chassis is tubular $3\frac{1}{2}$ in. in diameter and the shaft on the 165 in. chassis is

of two-piece type, $2\frac{1}{4}$ in. diameter front and 3 in. rear.

Standard equipment includes governor, front fenders and running boards, in addition to usual items. Bumpers are extra, front in black enamel listing \$5.00 additional.

Prices here quoted are based upon the "A" tire combination which is 7.00/20 eight-ply front and dual rear. High pressure 32 x 6 front and dual rear or 32 x 6 front and single 34 x 7 rear equipment is furnished for no additional charge. Balloon tires 7.50/20 front and dual rear are supplied at extra cost.



Stake body and cab mounted on G 44 chassis listed at \$1,070 f.o.b. factory

This little dollar



went to Market

It shivered a bit when it started. It was a timid dollar, scared of crowds.

When it got to the market-place, it saw a lot of signs. "Coats reduced." "Shoes at a bargain." "Hats at new low prices."

"Do these signs really mean what they say?" Dollar asked itself. "Because, if they do—"

Just then, another dollar came along looking like a dollar-and-a-half, all dressed up in new clothes and carrying a big basket of food.

"Oh, I say," cried the Timid Dollar, "how can you afford all these new things?"

"Ha, ha," laughed the Dressed-up Dollar merrily, "go into the market-place and see!"

"Do those signs *really* mean what they say?" asked the Timid Dollar.

"Yes, they do! And the values are wonderful!"

With that, the Timid Dollar ran to the market-place, and came back looking like a dollar-and-a-half, too. By the time the envious Stay-at-home Dollars got to market, the signs were down and the prices had all gone up.

and this



is how

it came home

The dollar you *spend* now is worth \$1.50
The dollar you *save* now is worth 75¢

Maybe that sounds ridiculous—but it's true today.

Compared with your 1929 dollar, your 1932 dollar will buy about \$1.50 worth of such things as staple foods, clothing, furniture, radios, household appliances and automobiles, at present prices.

But, if you *keep* your dollar, thinking it's the same dollar you had two years ago, you'll find that it's worth just about 75 cents.

By *spending* your 1932 dollar, you not only get the things you need most at bargain prices, but you help provide a job for somebody who would otherwise have to depend upon charity.

If you help put this other somebody to work, he can buy the things *you or your husband* makes or sells, and that will help *you* to have *more* dollars.

Think about this when you are tempted to say, "No, I can't afford that now."

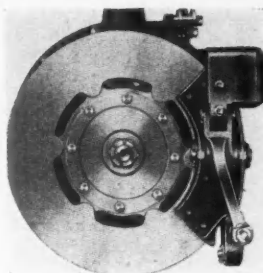
THE NATIONAL PUBLISHERS' ASSOCIATION

"To use available income to purchase goods normally needed and in the replacement of which labor is employed, is a condition precedent to any hopeful program to constructively increase employment."

From the Recommendations of the Committee on Unemployment Plans and Suggestions, of the President's Organization on Unemployment Relief.

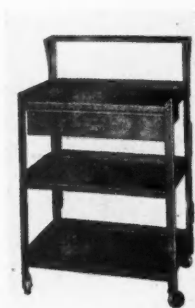
NEW TRU-STOP EASES RELINING

THE American Cable Co., Inc., Bridgeport, Conn., has redesigned its Tru-Stop disk type parking brake for trucks and buses. The new brake is more compact than the old one and gives ample clearance for power take-offs. Relining of shoes has been greatly simplified by making shoe removal and adjustment relatively easy. Careful attention has also been given to the kinds of metals best fitted for the different parts making up



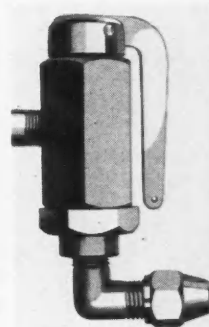
the brake. The brake consists of a ventilated disk mounted on the transmission main shaft where it projects from the housing and a pair of shoes that are applied to opposite sides of the disk with uniform pressure by a simple mechanism connected directly to the operating lever. The brake shoes are supported on levers pivoted to a bracket which is secured to the transmission housing. Disks are high carbon forgings, shoes malleable iron.

TOOL STAND



THIS new triple-duty portable tool stand was designed by Lyon Metal Products, Inc., Aurora, Ill., to store tools, carry them to the job and serve as a utility workbench at the job. It is 28 in. wide, 18 in. deep and 34½ in. high. Standard equipment includes a large drawer, rack for connecting rods, valves and valve guides, two shelves, brackets for floor boards and mats, and casters. The price is \$12.50. Without equipment price is \$4.80.

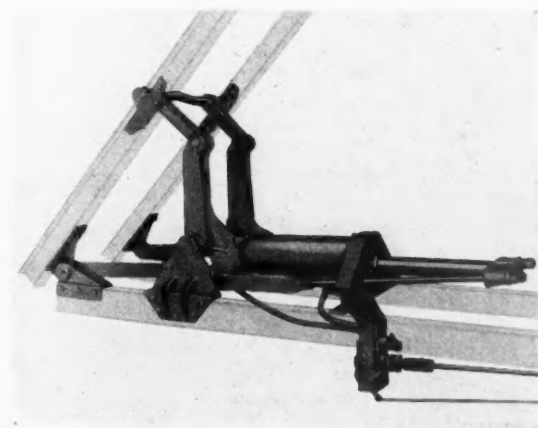
GAS PRIMER



A DEVICE for facilitating the starting of engines has just been introduced by The Linde Air Products Co., N. Y. It is known as the P-O-L Primer and introduces acetylene, a highly combustible gas, into the cylinders of the engine. It is easily installed and consists of a special stem type brass primer valve, a pressure regulator and 10 ft. of tubing. It is mounted on the intake manifold, fed from a tank and operated by a pull wire.

ST. PAUL HOIST

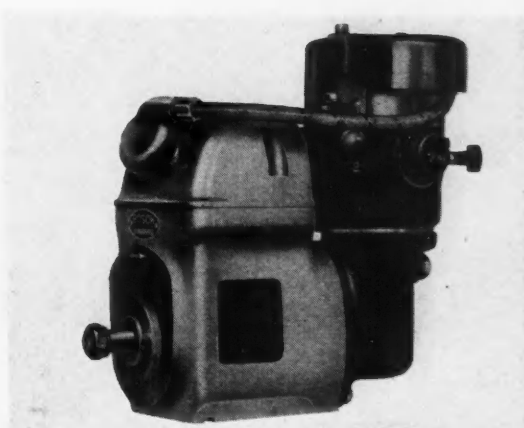
AN underbody hoist for trucks having a rated capacity of 7½ tons is being offered by the St. Paul Hydraulic Hoist Co. It is known as Model 95 UB. Hydraulic power is used to pull the body into dumping position. The principle involved is simple—as the piston rod moves forward, rods attached to its head pull the short legs of levers, swiveled to brackets on the body sills, which raise the longer legs of these levers. The longer legs of the levers are attached to the body through two short legs. When raising, links on the pull rods engage with two teeth on the short legs of the levers.



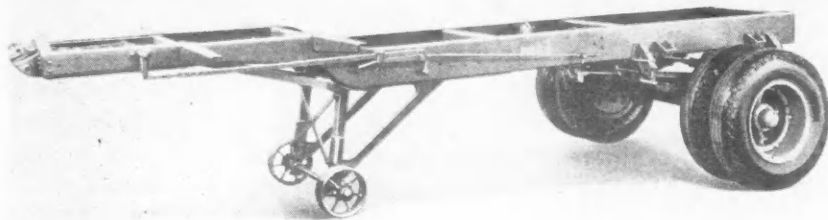
Left: St. Paul's 7½-ton underbody hoist. Operation is controlled by two levers located in the cab

U.A.B. MAGNETO

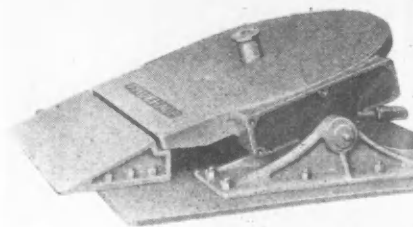
A NEW ignition system for trucks in heavy duty fast service has been developed by the United American Bosch Corp. It is known as the Rapid Transit Magneto and includes three types of six-cylinder magnetos. The JR-6 which is for use on engines with a single ignition system, the JRD-6 which is equipped with dual ignition operating on one set of spark plugs, and the JRZ-6 for use on engines with both battery and magneto ignition having two spark plugs per cylinder operating simultaneously. High tension distribution by a timer type distributor and a stationary interrupter operated at 1/3 regular speed are features.



Right: Bosch Model JR6 magneto incorporates many new features of design and construction to reduce ignition ills



New Fruehauf light weight
large capacity semi-trailer



Blocks of live rubber support
lower plate and king pin

FRUEHAUF CUTS DOWN TRAILER WEIGHT AND FLOATS COUPLERS

AS a result of considerable research conducted during the year of 1931 by the Fruehauf engineering department, many new improvements designed to give more satisfactory and profitable service to operators have been incorporated in Fruehauf's large line of products. Besides building major improvements in its automatic and manual couplers, refining and beautifying body design this Detroit company is introducing a new line of 4-wheel trailers and an entirely new model semi-trailer.

Fruehauf's major improvement is a new floating coupler, a rubber mounted fifth-wheel now supplied as standard. In this new model molded blocks of live rubber replace the usual draft springs. The rubber is molded around a steel shackle fastened to the pivot pin and carried in a special housing. Semi-trailer and tractor truck are insulated by these rubber blocks so that there is no metallic contact between units. The full load and all side and end thrust are cushioned by the rubber. This method of cushioning not only saves weight and eliminates many working parts but also

Front Insweep of Frame of New Four-Wheel Trailer Gives Short Radius

absorbs shocks of starting and stopping more smoothly and efficiently and provides greater running smoothness because of flexible action of the rubber in all directions.

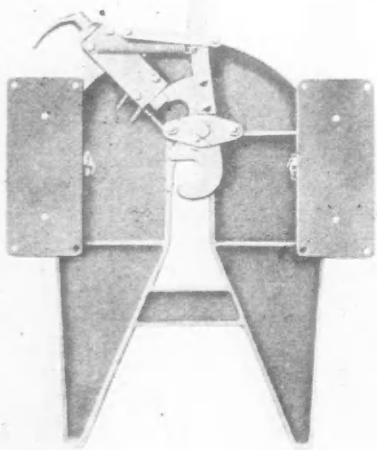
The manual coupler is further improved by a new and simplified coupling and locking mechanism, which also eliminates working parts, saves weight and adds greatly to ease of operation. Coupling action is automatic and locking positive. Uncoupling is quickly and easily accomplished by pulling a convenient handle on the front of the coupler. When trailer is uncoupled it is all set and ready for automatic coupling again.

The new line of narrow pressed steel frame four-wheel trailers just introduced by Fruehauf represents another important advancement in trailer design. These new trailers have a small drop in the frame just to the rear of the front wheels. This drop

allows for front wheel clearance and by lowering the rear portion of the frame the need for a built-up sub-frame for the rear wheels is eliminated. This construction not only saves considerable weight but lowers the center of gravity of the unit. Of even greater interest is the insweep of side members over the front gear, which permits a greater cramping of the front wheels, thereby materially decreasing turning radius and giving greater maneuverability.

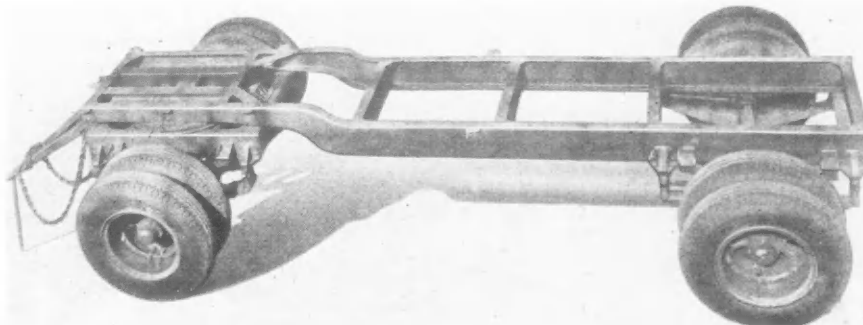
The new model semi-trailer offered by Fruehauf was designed to provide operators with a unit of greater capacity than the company's light models but less than their heavies. It is built in two models, manual and automatic, and various lengths. Frames are automotive type pressed steel with a small drop just back of the tractor-truck wheels. Side members back of the drop are 10 in. deep. Two sets of outriggers to replace forward body sills and auxiliary springs to cushion the load are standard equipment.

Improvements in body design and construction have kept pace with chassis improvements. The round front end body introduced by Fruehauf in 1929 for van service has been extended to other vocations. Fruehauf new body specifications place particular stress on appearance, lightness, sturdy construction and built-in conveniences and refinements.



Left: This manual coupler uncouples and locks automatically

Below: Front insweep of rails shortens the turning radius





AUTOMOTIVE FLASHES

Freeman Reorganizes

Reorganization of the Freeman Motor Truck Co., under name of Freeman Quadrive Corp., has been completed with Major Bollstrom, president and general manager; Lewis C. Jarrendt, vice-president and treasurer, and William F. Dick, sales and advertising manager. The factory has been moved into the former plant of the Eaton Axle Co., Pontiac, Mich.

A Cool Combine

Solid Carbonic Co. and Dry Ice Corp. of America, pioneer makers and distributors of solidified carbon-dioxide (CO_2), have merged. The combination controls more than half of production. Greater activity and distribution was the purpose.

Rail Profit from Trucks

Annual report of Boston & Maine railroad states that the net financial results of bus and truck operation in 1931 were the most satisfactory of any year. Profit for the year after interest and depreciation was \$19,328.

Turn About is Fair Play

New Jersey has just enacted a new law granting to motor vehicles from adjoining states reciprocal privileges of the same pattern granted New Jersey.

Don't Break Bridges

The Pennsylvania Department of Highways has warned truck operators to heed weight and speed limitations posted on highway bridges with the promise of liability in event of damage.

Hansen Catalog

A. L. Hansen Mfg. Co., Chicago, just brought out a new catalog containing a complete list of body hardware, including latest designs for refrigerator bodies. Views of actual application make the catalog a valuable record.

March Truck Sales

March factory sales of trucks made in U. S., according to the Bureau of Census, were 19,560, compared with 23,308 in February, 45,161 in March, 1931, and 65,466 in March, 1930.

Reciprocal Trucking

A national motor freight truck service to shippers has been formed under the name of Reciprocal Truck Operators Association, with headquarters at 819 Bankers Bldg., Los Angeles, Cal. It consists of a group of certificated truck lines operating under a reciprocal relations plan in all large

centers of distribution with a store door-to-door pick-up and delivery system. Individual identity of members will not be given up. Each will be assessed a nominal charge to defray clearing house expense.

Rail Trucking Spreads

Chicago railroads, through the Railway Express Agency, are extending their highway trucking business beyond the Chicago terminal field. The new service will radiate from 50 to 100 miles from the city.

Samuel A. Miles

Samuel Arthur Miles, 70, veteran manager of the National Automobile Shows in New York and Chicago, died April 25, following a stroke of apoplexy at his sister's home in Bristol, England. He was making his annual visit to his boyhood home in Wales. A month ago Mr. Miles submitted his resignation as show manager of the National Automobile Chamber of Commerce, a position he held since the Chamber was organized in 1914.

He first became affiliated with the automobile industry as editor of *Motor Age* in 1901. In 1903 he became general manager of the National Association of Automobile Manufacturers. In 1912, when N.A.A.M. and the Automobile Board of Trade amalgamated as the National Automobile Chamber of Commerce, Mr. Miles became the first general manager of the N.A.C.C., but after a year he relinquished that post to Alfred Reeves and devoted all his time to management of the two National Shows.

Virginia Goes Berserk

New motor vehicle laws enacted by Virginia provide for insurance of certificates to interstate carriers, a tax on all rolling stock of motor carriers, regulation of common carriers, raising of registration fees on vehicles of 2½ tons or more, limitation of commercial vehicle entry into state to three trips per year and only under permit.



PERSONNEL CHANGES

Frank Kalas, formerly district manager, has been advanced to the post of assistant sales manager of The Electric Storage Battery Co. (Exide).

H. L. White, manager of Autocar branch in Pittsburgh, has been transferred to Philadelphia, succeeding A. M. Bates, who has been transferred to the National Accounts Division in New York. W. W. Smith, Detroit manager, succeeds Mr. White at Pittsburgh, and D. M. Murry, salesman, takes over Mr. Smith's former post. A newcomer in the organization is J. O. Warner, formerly with Indiana and Federal, as manager of the St. Louis branch.

J. D. Burke, who has been connected with various divisions of the Chrysler organization, has been elevated to truck sales managership of Dodge Bros. Corp., succeeding W. S. Graves, whose new office has not yet been announced.

J. P. Little has been appointed vice-president in charge of truck sales for the General Motors Truck Co. He succeeds O. L. Arnold, who has been transferred to staff of Richard H. Grant, vice-president in charge of sales.

Col. George A. Green, vice-president of General Motors Truck, in addition to his duties as manager of engineering, has been placed in charge of manufacturing operations, succeeding Frank V. Hadas, resigned.

George Wilcox, formerly sales promotional of Federal Motor Truck Co. and more recently with George Harrison Phelps advertising agency handling Reo truck account, is now assistant to T. R. Lippard, president, Stewart Motor Corp.

J. H. K. Whiting, formerly truck sales manager of Thornton-Fuller, Philadelphia, Dodge Bros. distributors, has been transferred to Lancaster as general manager of W. C. Mellon, Inc. F. S. Hovey succeeds him in the Philadelphia organization.

Guy H. Billings, for 17 years purchasing agent for FWD, is now assistant general manager of the company. He will retain the title of purchasing agent.

Walter S. Foster has been elected a director of the Reo Motor Car Co., succeeding William Robert Wilson, resigned.

Victor Kliesrath, chief of engineering division of Bendix Aviation Corp., was elected to the board.

Edward H. Kocher was elected president and general manager of the Bijur Lubricating Corp.

Domestic New Truck Registrations by Makes and Months

	Autocar	Brockway-Ind.	Chevrolet	Diamond T	Dodge	Pageol	Federal	Ford	G. M. C.	International	LaFrance-Rep.	Mack	Moreland	Pierce-Arrow	Relay	Reo	Rugby	Schacht	Sterling	Stewart	Studebaker	White	Willys-Overland	Total Sales Including Miscellaneous
January.....1932	43	76	5,153	177	751	7	71	4,967	484	1,288	40	99	3	11	14	351	9	2	38	53	158	116	127	*14,393
January.....1931	223	154	7,569	167	1,186	23	111	11,313	447	1,325	28	218	16	3	13	280	32	15	62	84	297	221	159	24,415
February.....1932	62	74	5,508	171	623	4	96	4,675	507	1,264	23	110	8	17	23	291	4	5	25	86	189	146	115	*14,388
February.....1931	177	107	7,459	135	1,129	31	100	10,868	388	1,368	34	184	12	4	28	261	30	11	47	85	268	204	184	23,466
March.....1932	60	44	5,565	154	675	18	77	4,106	438	1,354	29	96	19	4	15	297	18	7	30	53	189	115	116	*13,778
March.....1931	121	151	9,396	144	1,363	15	123	14,731	454	1,881	36	286	17	9	18	308	30	10	57	119	362	207	281	30,609
Total 3 months.....1932	165	194	16,226	502	2,049	29	244	13,748	1,429	3,906	92	305	30	32	52	939	31	14	93	192	536	377	358	42,559
Total 3 months.....1931	521	412	24,424	446	3,678	69	334	36,912	1,289	4,574	98	688	45	16	59	849	92	36	166	288	927	632	624	78,490

* Georgia figures not included † 41 states

The President's Page

CONTINUED FROM PAGE 13

Michigan legislator who introduced a bill to reduce the height of trucks merely because a moving truck from which a bedspring protruded tore down a telephone wire in front of his house. Merely because of a faulty loading job he would penalize the entire industry in the state and cost hundreds of other innocent operators thousands of dollars. In Texas a new law rules motor equipment worth millions of dollars off of the highways. In the Houston district it is estimated that equipment worth a million and a half dollars is obsolete by new Texas law.

In short, 49 states including the District of Columbia have erected 49 barriers preventing free circulation of motor vehicles from one state to another. By so doing they are increasing the cost of transportation; they are hampering efforts to reduce the cost of manufacture, which reduction would be passed on to the truck operator and then on down to the shipper and to the ultimate consumer. For with the conflicting regulations it is obviously impossible to bring about a standardization of truck sizes and equipment possible if regulations were uniform.

During 1931 the automotive industry gave employment to 9½ per cent of the "gainful workers" in the United States, employing 3,197,000 directly and 925,000 indirectly—4,022,000.

In spite of the fact that business has been facing one of the most critical periods it has ever met, the automotive industry has taken a high sense of responsibility and has operated frequently without hope of profit when by all rules of good business operation the plants should have been closed. This was done, however, to maintain payrolls and to avoid need of a dole.

But, regardless of all of this, operators are constantly facing attempts of state legislatures to increase gasoline taxes, weight taxes and mileage taxes on trucks and buses and in addition the Federal Government is attempting to burden the industry still further with a sales tax. Also talk is heard of a Federal gasoline tax. This is a duplication of state taxes, with which the industry and operators should not be burdened. Both the automotive in-

dustry and operators are bearing all they can stand. Any further increase in taxes is equivalent to confiscation.

Any further increase in taxation will strike where it will hurt—at the farmer, at the small business man. Statistics show that 26 per cent of all trucks are owned by farmers and that 85.8 per cent of all trucks are owner-operated. This means that increased taxes will strike the man of small means, the man who can ill afford to pay; that it will strike at the farmer who, all admit, is sorely in need of relief and can ill stand any oppression.

The situation is one that cries out for action. Manufacturers and operators of motor vehicles must get together and stick together to defeat attempts to sandbag our business.

I. C. C. Asks Congress for 'Partial' Truck Regulation

CONTINUED FROM PAGE 17

operations performed by them and make such reports as the commission may reasonably prescribe.

For the present no requirements should be made regarding the qualifications of drivers, hours of service of employees, and the size, length, weight of load, and speed of motor vehicles operating interstate for hire.

Participation in through routes and through rates between common carriers by motor truck and common carriers by railroad and by water should be authorized but not required.

Freight-forwarding companies and express-freight companies should be subject to interstate commerce act.

Jurisdiction to administer these regulations should be vested in the commission with directions to refer specific matters to state bodies.

Commissioner McManamy concurred in part. While expressing a belief in interstate truck regulation he stated he was not convinced that the Federal Government should regulate or that it could effectively do so. He argued that if rails are given the right to supplement their service by the use of motor vehicles on the same terms as motor-truck operators, and the desire to render complete service exists, coordination will follow as the day follows night. Commissioner Lee joined him in this expression.

Commissioner Lewis, concurring in part, desired more data on which to base advances in regulation. He would require interstate operators to file minimum rates and charges or their tariffs, and to take out an interstate-commerce vehicle-license plate to provide expenses of administering law.

Congress should provide an impartial and authoritative investigation of "subsidized competition," and desirability of uniform regulations affecting public safety (size, weight and speed restrictions).

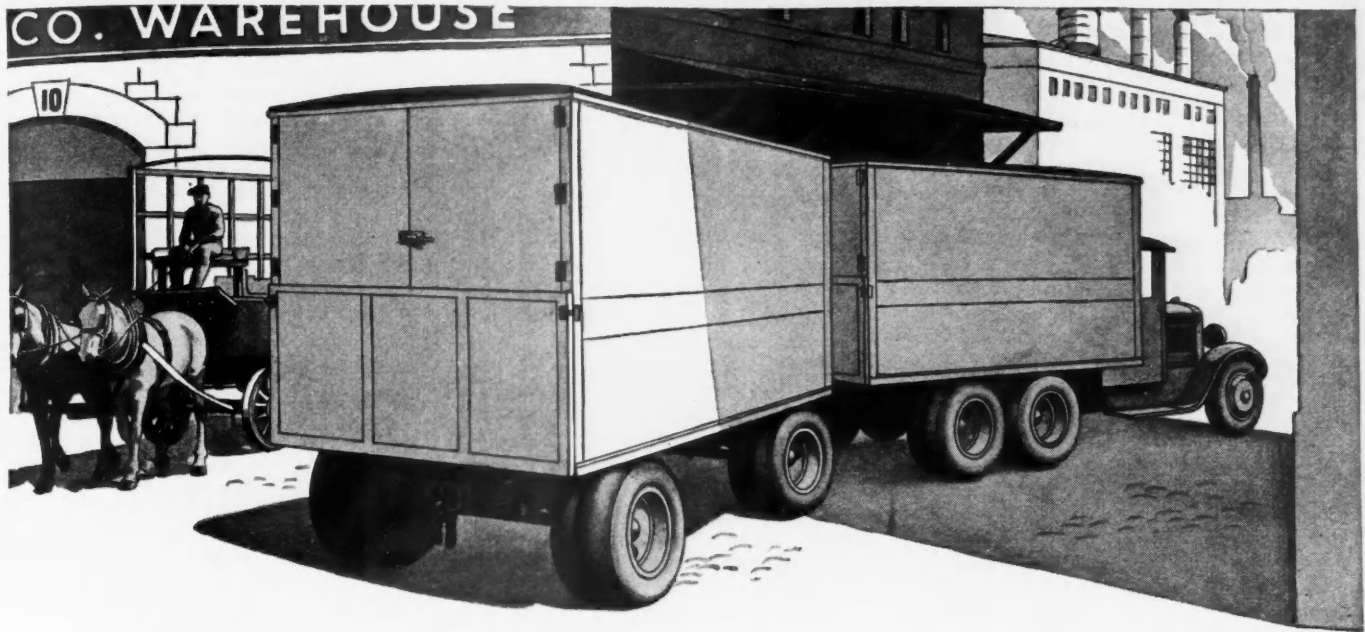
Oil Change Is a Bugaboo But It Can Be Controlled

CONTINUED FROM PAGE 26

sity for lubricating chassis parts, to a greater extent than has obtained heretofore, but we feel that a careful study of service and repair costs should be included in decisions on this point. For example, we have disposed of shackles and pins requiring lubrication on both ends of truck springs but have acquired in their place radius rods, which require some lubrication, suffer rather rapid wear and need more expensive repair than spring shackles and pins when they are properly attended and lubricated.

We have secured automatic and constant lubrication for most of our chassis parts, including water pumps. While not exactly ideal we believe that our efforts have resulted in an improvement over the original designs.

Undoubtedly lubrication engineers can determine upon a smaller number of satisfactory oils and greases than are presently required for proper lubrication. And if oil companies would cooperate, still more could be accomplished along this line. But I have no doubt that were the number of oil types reduced by such collaboration the sales departments of some of the oil companies would immediately create at least one or two additional grades with attractive selling points in order to provide themselves with a little competitive advantage. For that reason I believe more good can be accomplished by truck users and truck manufacturers working out the lubricant question together. If this could be done oil companies could be persuaded to give us what we want.



The Only Safe Way

Do you own any trailers which are not equipped with brakes?

Here's an easy, practicable low cost way to modernize them—equip them with Timken Trailer Axles.

You can get axles for any type of trailer. You can get expert assistance on installation. You can get them at moderate cost.

And the *only safe way to put brakes on a trailer is to substitute new axles.* The chances are the original axles

were not designed to withstand the stress of braking torque.

To assure correct hook-up of any type of brake, and any type of power application, Timken Trailer Axles for trailer conversion are distributed exclusively by the authorized distributors of the Bragg-Kliesrath Corporation and the Bendix Westinghouse Automotive Air Brake Company. Get in touch with your nearest distributor.

THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan

TIMKEN AXLES



How Should Truckmen Classify Commodities?

CONTINUED FROM PAGE 29

Sometimes the rates are made by weight groups, with rates applying to all shipments in packages up to 15 lb., higher rates on packages between 16 and 50 lb., still higher rates on those between 51 and 100 lb., and so on. This plan has two serious limitations. It does not reflect differences in the character of the freight, and it ignores the fact that the proper basis of freight charges is not the *package* unit but the *shipment*. A shipment of 100 lb. in a single package should pay the same rates, as a general rule, as two or three packages of the same total weight—all other factors being equal. This is the established practice among railroad and water carriers, and experience has proved the practice to be economically sound.

A smaller number of motor carriers use a commodity-group system of classification. This system can be used to any advantage at all only by carriers who specialize in the transportation of a limited number of commodities. Rates are fixed upon certain articles and all similar articles are given the same rates. For example, rates are fixed upon petroleum, oil in barrels and all similar articles such as gasoline, kerosene, greases, and a number of other articles are given the same rates. Another commodity rate group includes every kind of dry goods; another all types of woodenware; while another group includes all kinds of iron or shell products.

A few motor freight carriers whose rate and classification practices have been examined in the course of this study fix rates which are based solely upon the amount of space in the truck occupied by the goods. Rates are set at fixed amounts per 100 lb. with the proviso that a certain number of cubic feet of space occupied by the freight will be considered as 100 lb. regardless of the weight of the shipment. If, for example, rates assessed upon a space basis of 2 cu. ft. are considered by the carrier to be a fair equivalent of 100 lb. of weight, then a shipment measuring 4 ft. in length, by 1 ft. in height, and 1 ft. in width, or 4 cu. ft., would be charged at the rate for 200 lb. despite the fact that it weighs but 100 lb.

This system has merit in that it recognizes the very important fact that a motor carrier has only a limited number of cubic feet of vehicle capacity and that his service is measured in space-miles. He must get adequate revenue from the available space and to do this he must avoid transporting goods at rates based upon weight, when the articles occupy a large amount of space in proportion to their weights. It is a weak system in that it considers only size and bulk and does not take into account other very important classification factors.

A very large number of motor freight carriers follow the system of

classification used by the railroads in the territories in which they operate.

The use of railroad classification has several very great advantages. Shippers are familiar with railroad classification practices, and the motor carriers need not take the time and effort to work out a fair and comprehensive freight classification system which is already available from the railroads. Use of the railroad classification also puts truck, rail and steamship rates upon a more nearly comparable basis when the same classification is used by all types of carriers.

There is this pertinent objection, however. The railroad freight classification, and the rules and ratings of articles under this system have been developed to meet the needs of railroads and to reflect transportation distinctions among commodities, which may have slight or no significance in motor transportation. The system is not "tailor-made" for the motor carrier but a ready-made garment which at times may only fit in spots. The system used by railroads when applied to trucks may in some cases provide rules and regulations obnoxious to shippers. The railroad freight classification may provide too many class ratings. For example, the Official Classification provides eight classes, whereas the motor carrier may wish to recognize four.

This difficulty is sometimes circumvented by motor carriers through the use of the railroad classification with exceptions and modifications in the rules and regulations to suit their requirements. The number of classes may be reduced by grouping the articles in several railroad classification classes into one class.

A large system of connecting motor carriers in the Middle West uses the Official Classification with certain alterations in its rules and by grouping the eight railroad freight classes into four classes as follows:

Official Classifications as used by Railroads	1	2	Rule 25	3	Rule 26	4	5	6
Truck Classes.....	1	2		3		4		
Official Classifications as modified by Motor Freight Carriers.....	1	2 and Rule 25		3 and Rule 26*		4, 5 and 6		

The pioneer in the field of building special classifications for groups of motor freight carriers is Lewis A. Monroe, of Los Angeles, Calif. He, as agent for a number of Pacific coast motor carriers, publishes Monroe's "Ship By Truck" Freight Classification. This is now a comprehensive classification designed especially to meet the peculiar needs of motor freight carriers. It lists, describes, and rates several thousand commodities which are offered to motor carriers for transportation. It is used by motor carriers whose individual or joint tariffs are published showing that they are governed by the Monroe

Classification. The classification is a copyright and cannot be used by other carriers which do not participate in its publication. The rules and regulations of the classification and its class ratings govern in all cases excepting in cases where commodity rates are published in the individual tariffs of the motor freight carriers who are parties to the classification. The publication of the classification is regulated by the California Railroad Commission. Motor freight carriers obtain authority from the commission to file their tariffs subject to the rules, regulations and ratings of the Monroe Classification. Four numbered classes and a number of multiple and fractional class higher than first class are provided by the classification.

The laws of the State of Washington require common carriers in motor freight service to publish and file tariffs of rates and charges, and compel the use of a system of freight classification when the business of the carriers is sufficiently extensive to require the use of a freight classification.

A uniform classification is prescribed in such cases by the Department of Public Works of the State of Washington, the state administrative department having jurisdiction over intrastate motor highway transportation. All carriers engaged in this service are required to file with this department their freight tariffs which are governed by this classification.

This classification, like the Monroe "Ship By Truck" classification, provides for four numbered classes: first, second, third and fourth; and including a number of classes higher than first class, one and one-half times first class, two times first class, two and one-half times first class, three times first class, four times first class, five times first class, six times first class, and up to ten times first class.

The actual ratings of the articles

are generally similar to those in Monroe's Classification, except that the classification is not so detailed.

The shipping rules and regulations are somewhat different, however, and some are worthy of note.

Rule 1 provides that whenever a truckload (or less than truckload) commodity rate is established it removes the application of the class rates to or from the same points on that commodity.

Rule 2 states that freight of an extra bulky character will be charged for on a measurement basis of one-fourth of the fourth class rate for each

TURN TO PAGE 48, PLEASE

The

1932

STEWARTS



Wheelbase Lengths
160", 170", 180", 196", 226", 241"

Honest Trucks • • • Honestly Rated Honestly Priced

Stewart's long established leadership in truck value is again evident in 1932. Handsomer in appearance, more rugged, more powerful, the 1932 Stewarts are marked by improvements in engineering principles and design that place them far in advance of all truckdom.

If you are looking for a truck that will stay on the road and out of the repair shop—whose average life is 5 years or more—see the 1932 Stewarts. They are honestly rated, honestly priced, honestly built for many years of constant, faithful service. If your trucking requirements demand many miles per day, you will find the new Stewart 8's unequalled for performance, economy and dependability. Free Catalog upon request.

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MOTOR TRUCKS

STEWART MOTOR CORPORATION
BUFFALO, N. Y.

Cables:
Stewartruk-Buffalo

Codes: Acme, Bentley's (Complete Phrase)
Bentley's (Second Phrase), Universal Trade
Code, A.B.C. 5th Imp. (5 and 10 letter)

3 NEW Stewart 8's

2½ ton—\$2390 Chassis
3 ton—\$2990 Chassis
3½ ton—\$3990 Chassis

MODELS

Bevel Axle Chassis Prices

1	ton, 4 Cylinder.....	\$ 695
1	ton, 6 Cylinder.....	795
1½	ton, 6 Cylinder.....	995
2	ton, 6 Cylinder.....	1195
2	ton, 6 Cylinder.....	1695
2½	ton, 6 Cylinder.....	1990
2½	ton, 8 Cylinder.....	2390
3	ton, 8 Cylinder.....	2990

Worm Axle

*3	ton, 6 Cylinder.....	\$2690
*3½	ton, 6 Cylinder.....	3690
*3½	ton, 6 Cylinder.....	3990
*3½	ton, 8 Cylinder.....	3990
*5	ton, 6 Cylinder.....	5190
*7	ton, 6 Cylinder.....	6190

*Double Reduction or Worm
Rear Axle Optional

All Prices f.o.b. Buffalo, N. Y.

Honest Trucks-Honestly Rated-Honestly Priced

An Engineer Eyes the Future Truck

CONTINUED FROM PAGE 23

Functions of control afford another field where need for change seems desirable. Some details have already been touched on, but the subject merits more detailed treatment. With the greater loads and higher speeds and larger mileage covered per trip or per day, it is imperative that control of the vehicle be made as easy for the operator as possible. Large section, low pressure pneumatic tires have made steering a harder problem. Developments in steering gears have been satisfactory so far, but it is probable that heavier front wheel loads will be demanded which will require still further improvement in steering apparatus. This brings up the question of power steering. Considerable work has been done in this direction, but much more is needed before power steering can be considered acceptable. While present types give satisfactory results at slow speeds, control at operating speeds is uncertain and it would seem that graduation of power assistance in inverse relation to vehicle speed is a necessity.

Outside of mechanical limitations of the friction clutch and sliding gear transmission, which has been referred to, operation of this mechanism from a control standpoint leaves much to be desired. This is particularly true in city operation, both of buses and trucks. In the bus, the electric transmission system has had its greatest acceptance in this field, but there is still ample room for improvement. It is much easier to set up the ideal to be sought after than to outline means for realizing it.

The importance of braking needs no emphasis. It can probably be best analyzed by separating consideration into two parts, operation and energy absorption. For heavy duty vehicles, air control is gradually being developed to a point that leaves little room for criticism. Elimination of mechanical connections, provision of means for operation of trailer brakes, equalization of pressure to the various brakes and ease of operation, are all most desirable features. On the other hand, while great improvements have been made in brake mechanism, including drum material, friction facing, etc., there is still much to be done. In the first place, the conflict between the tire and brake to occupy the same space, continues with unabated fury, and if the extreme low pressure tires recently proposed for passenger cars can be accepted as an indication of what the future holds in store, the brake is out of luck. For short application in ordinary operating conditions, the present brake works satisfactorily, but there is no doubt that for control on down grades, the amount of energy that must be handled is too great for present mechanism or indeed for any conceivable mechanism of the present type that

can be incorporated within the available space. It would seem that what is necessary is a design which will provide for the dissipation of heat as fast as it is generated as nearly as may be. One scheme of this sort has already been referred to.

The improvement in roads and the development of pneumatic tires has greatly improved the riding quality of all vehicles. Nevertheless, it would seem that a radical departure from present spring suspension might result in improvement in riding together with a lessening of weight, complexity and cost. I cannot tell you how this can be done and know of no present developments that are promising.

In the statements made so far, I have tried to keep within reasonable limits although I have no doubt that there are many points open to attack. Possibly, as some compensation, I may now be permitted to roam farther afield.

It may be interesting to set up some ideals which seem as remote as some of the outposts of the universe which our astronomer friends talk about.

Starting on this journey, by taking the powerplant, what we want is an engine in which the mechanical motions are all rotary; in which gases at relatively high temperatures and pressure do not come in contact with parts of the mechanism, which cannot be provided with direct means of eliminating heat, in which the operating temperature can be maintained at the most favorable point throughout the operating range of speed and load and which will have the same efficiency both mechanical and thermal over this same range. It should also be possible to exert full torque over the speed range from zero to maximum. The power from the engine should be delivered to all of the wheels in direct relation to the traction they have without the use of mechanical universal joints or differentials. The body and chassis should be incorporated in one structure so that advantage could be taken of the stiffness it is possible to develop in a structure of this form. The wheels should be independently sprung to the structure by means of a system which would automatically adjust itself to all conditions of load, speed and road. The control should consist only of a means of steering to be operated by hand and one pedal for starting and varying the speed and another for controlling the brakes.

As I look over these specifications, I get the uncomfortable feeling that I am talking about a horse, possibly on roller skates, so before I give the whole works, I will stop this journey into the future.

How Should Truckmen Classify Commodities?

CONTINUED FROM PAGE 46

cubic foot of space occupied, if such method creates a greater charge.

Rule 6 governs packages containing freight of more than one class, pro-

vided that such mixtures shall be charged for on the basis of the highest rated article contained.

Rule 7 provides that the rates quoted include the delivery of the goods from the truck up to, but not exceeding, a distance of 12 ft. from the tailgate of the truck.

Rule 9 states that carriers will not accept a shipment from more than one shipper, or when billed to more than one consignee. All shipments must be billed from one consignor to one consignee.

Rule 12 stimulates that freight liable to damage other goods need not be accepted for shipment.

Freight classification, as has been previously pointed out, is a process of segregating analogous articles into a limited number of rating groups for rate making purposes. This segregation process must not be arbitrary if discrimination is to be avoided.

The factors affecting the nature of the articles and those connected with the commercial characteristics determine to a considerable degree the value of the transportation service to the shippers or owners of the goods; while the transportation factors determine in large measure the cost of performing the service. A consideration of all of these factors, not in an abstract or academic way but in a very hard-headed practical way, determines the class ratings that the traffic will bear.

Pierce-Arrow Truck Prices Slashed Down

In February Pierce-Arrow announced its new policy of heavy-duty truck manufacture involving a system of progressive interchangeability of design to fit varying operating needs. Pierce-Arrow this month announces a change in merchandising policy. By reducing dealer and distributor discounts and cutting factory profits new list prices were established \$650 to \$1,600 below those previously in effect.

The former distributor discount was 40 per cent higher than the present maximum. Discount is now identical on the Studebaker line and on the Pierce-Arrow line.

Buyers of heavy-duty equipment, according to the company, have been accustomed to inflated prices which made possible either big fleet owner discounts or heavy over-allowance on used trucks, or both. Each deal, therefore, involved a great deal of bargaining, bartering and horse-trading entirely apart from the merit of the truck and its fitness for the job. All this water has been squeezed out of Pierce-Arrow prices, the announcement explains. It is expected that the new policy will permit salesmen to devote their entire time to selling truck quality as they will have no heavy margin for discounts or over-trading on used trucks.

For new prices on line see specifications on page 68.

Built by Bosch

A RAPID TRANSIT MAGNETO

OFFERS 3 MODELS—FOR EVERY BUS AND TRUCK REQUIREMENT

RAPID TRANSIT—with more and more accent on the "rapid". That has been the trend of bus and truck operation in recent years.

Rapid transit—with higher and higher road speeds—more and more vibration—performance without apology for interruptions.

Rapid transit—in short—has brought new conditions that are a constant menace to fleet operation—a constant challenge to manufacturers of equipment. Now Bosch meets that challenge with a new type of magneto engineered to these new-day requirements—the Bosch Rapid Transit type magneto.

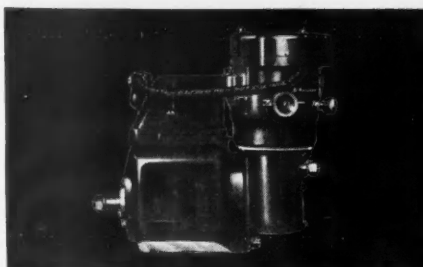
Double-dependability

First and foremost, the Bosch Rapid Transit Magneto offers you double-dependability. Now road tie-ups and delayed schedules resulting from ignition troubles are relegated to the realm of improbability.

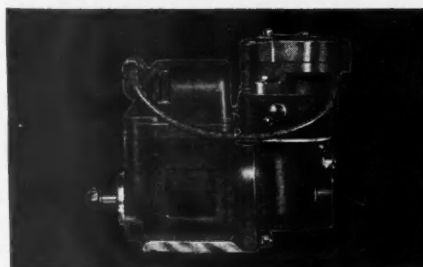
Second, the Bosch Rapid Transit Magneto offers an alternate source of ignition for buses with battery ignition only.

Third, the Bosch Rapid Transit Magneto keeps the engine operating with greatest efficiency. Engine performance—whether at speeds as low as 44 R. P. M. or very high speeds—is more responsive and efficient. Starting is quicker and easier. There is a real saving in gasoline.

Fourth, the Bosch Rapid Transit Magneto reduces maintenance costs.



JRD-6—For buses and trucks equipped with either battery or magneto ignition system only. 2 interrupters are provided within the single distributor. A single switch permits instant change from battery or magneto ignition.



JR-6—Standard type magneto. Incorporates same fundamental improvements as the other models, but has a single interrupter and distributor.



JRZ-6—For buses or trucks using a twin ignition system with 2 spark plugs per cylinder. Two distinct distributors with integral interrupters—one for battery ignition use; the other for magneto ignition use.

Over 75,000 miles to date—without faltering!

Although only recently announced, the Bosch Rapid Transit Magneto has already proved itself—on various types of buses and trucks—under various conditions of service—under all kinds of climatic conditions. Many of these magnetos have passed the 75,000 mile mark, yet have never failed.

A complete description of Bosch Rapid Transit Magnetos, the 13 radical new technical improvements which they embody, and the application of these new magnetos to your own requirements, is detailed in a new rotogravure booklet, a copy of which we will be glad to send you on receipt of the coupon below.

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RAPID TRANSIT






TYPE

MAGNETO






UNITED AMERICAN BOSCH CORP., SPRINGFIELD, MASS. SEND BOOKLET ON SUBJECTS CHECKED:

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- ☐  Coils
- ☐  Motor Car Radio
- ☐  Magnetos

WRITE NAME AND ADDRESS IN SPACE BELOW



CORRECTIONS ARE MADE EACH MONTH FROM DATA SUPPLIED DIRECT BY TRUCK MAKERS +

May, 1932 The Commercial Car Journal

TRUCK SPECIFICATIONS TABLE

+ FOR MEANING OF ABBREVIATIONS AND EXPLANATION OF REFERENCE MARKS SEE PAGE 72

Line Number	ENGINE DETAILS										FUEL SYST.		ELEC. TRICAL		FRONT AXLE	BRAKES		BODY MOUNTING DATA		SPRINGS		Auxiliary Type								
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS		Oiling System Type	Governor Make	Carburetors Make	Fuel Feed		Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universal Make	Steering Gear Make		SERVICE		Hand Type, Location	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear
									Number and Diameter	Length													Make, Location and Type	Lining Area							Drum Material
1468	4.4	322	43.3	120-2200	H	C	A	4-2 3/4	10 1/2	CC	Ha	Zen	VDR	DR	P.B.L	Lo	Spl	Tim	27451	Ros	O4IA	720	A	CD	172	102	33 1/2	42x3	56x4	N
2707	4.4	500	60	175-2200	H	C	A	7-3 1/4	14 1/2	CC	Ha	Zen	MDR	DR	P.B.L	Lo	Spl	Tim	27451	Ros	O4IA	810	A	CD	172	102	33 1/2	42x3	56x4	N
3772	4.4	500	60	175-2200	H	C	A	7-3 1/4	14 1/2	CC	Ha	Zen	MDR	DR	P.B.L	Lo	Spl	Tim	27451	Ros	O4IA	810	A	CD	172	102	33 1/2	42x3	56x4	N
5248	5.0	150	27.3	65-2600	L	G	C	4-3	10 1/2	FP	Mo	Zen	VDR	DR	P.B.B	Ow	Own	Tim	3000H	Ros	L4IH	380	G	TX	Opt	Opt	31 1/2	40x2 1/2	50x3	N
6298	4.7	192	33.7	66-2200	L	G	C	7-2 1/2	13 1/2	PC	Mo	Zen	MAL	AL	D.B.B	Yo	Spl	Tim	12703H	Ros	L4IHV	452	G	TX	Opt	Opt	31 1/2	40x2 1/2	50x3	N
7339	4.7	225	38.4	73-2200	L	G	C	7-2 1/2	13 1/2	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	33020H	Ros	L4IHV	578	G	TX	Opt	Opt	31 1/2	40x2 1/2	50x3	N
8339	4.7	225	38.4	73-2200	L	G	C	7-2 1/2	13 1/2	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	33020H	Ros	L4IHV	578	G	TX	Opt	Opt	31 1/2	40x2 1/2	50x3	N
9360	4.7	238	40.3	80-2200	L	G	C	7-3	13 1/2	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Shu	5572	Ros	L4IHV	768	G	TX	Opt	Opt	31 1/2	41x2 1/2	56x3	N
10428	4.7	280	46	93-2200	L	G	C	7-3	15	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Shu	5572	Ros	L4IHV	768	G	TX	Opt	Opt	31 1/2	41x2 1/2	56x3	N
11478	4.7	318	51.2	103-2200	L	G	C	7-3	15	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	14703H	Ros	L4IHV	658	G	TX	Opt	Opt	31 1/2	41x2 1/2	56x3	N
12478	4.7	318	51.2	103-2200	L	G	C	7-3	15	PC	Mo	Zen	MAL	AL	D.Fu	Yo	Spl	Tim	14703H	Ros	L4IHV	658	G	TX	Opt	Opt	31 1/2	41x2 1/2	56x3	N
13201	5.5	142	21.6	64-2800	L	G	C	4-2 1/2	9 1/2	CC	Ha	Zen	GDR	DR	P.B.B	Fe	Spl	Tim	11710H	Gem	L4IH	424	p	T	96	53 1/2	34	38x2 1/2	50x2 1/2	N
14201	5.5	142	21.6	64-2800	L	G	C	4-2 1/2	9 1/2	CC	Ha	Zen	GDR	DR	P.B.B	Fe	Spl	Tim	11710H	Ros	L4IH	437	p	T	118	66 1/2	34	38x2 1/2	50x2 1/2	N
15224	9.1	146	25.3	62-2800	L	G	C	4-2 1/2	9 1/2	CC	Ha	Zen	GDR	DR	P.B.B	Fe	Spl	Tim	11710H	Ros	L4IH	437	p	T	118	66 1/2	34	38x2 1/2	50x2 1/2	N
16298	5.0	198	33.7	85-3000	L	G	C	4-2 1/2	10 1/2	CC	Ha	Zen	MAL	AL	P.B.B	Pe	Spl	Tim	31000H	Ros	L4IH	450	e	T	142	81 1/2	34	38x2 1/2	50x7 1/2	N
17298	5.0	198	33.7	85-3000	L	G	C	4-2 1/2	10 1/2	CC	Ha	Zen	MAL	AL	P.B.B	Pe	Spl	Tim	31000H	Ros	L4IH	450	e	T	142	81 1/2	34	38x2 1/2	50x7 1/2	N
18339	4.6	212	38.4	82-2400	L	G	C	7-2 1/2	13 1/2	CC	Ha	Zen	VDR	DR	P.B.B	Pe	Spl	Tim	33010H	Ros	L4IH	540	e	T	173	105	34	39x2 1/2	56x3	N
19298	5.0	198	33.7	85-2800	L	G	C	4-2 1/2	10 1/2	CC	Ha	Zen	MAL	AL	D.B.L	Yo	Spl	Tim	33010H	Ros	L4IH	540	e	T	173	105	34	39x2 1/2	56x3	N
20339	4.6	212	38.4	81-2500	H	C	B	7-2 1/2	13 1/2	FP	Ha	Zen	VDR	DR	P.B.B	Pe	Spl	Tim	35000H	Ros	L4IH	657	e	T	197	119	34	40x3	56x3	N
21381	4.6	212	38.4	81-2500	H	C	B	7-2 1/2	13 1/2	FP	Ha	Zen	VDR	DR	P.B.B	Pe	Spl	Tim	35000H	Ros	L4IH	657	e	T	197	119	34	40x3	56x3	N
22381	4.6	212	38.4	81-2500	H	C	B	7-2 1/2	13 1/2	FP	Ha	Zen	VDR	DR	P.B.B	Pe	Spl	Tim	35000H	Ros	L4IH	657	e	T	197	119	34	40x3	56x3	N
23428	4.9	268	45.9	101-2400	H	C	C	7-3	13 1/2	FP	Ha	Zen	VDR	DR	P.B.B	Pe	Spl	Tim	26450H	Ros	L4IH	864	e	T	221	132	34	40x3	56x3	N
24314	5.2	213	33.7	75-2400	L	G	C	7-3	12 1/2	FP	No	Str	VDR	DR	P.L	GO	GO	Tim	31000H	Ros	O4IH	388	e	TX	124 1/2	72 1/2	34	40x2 1/2	54x3	N
25358	5.2	213	33.7	75-2400	L	G	C	7-3	12 1/2	FP	No	Str	VDR	DR	P.L	GO	GO	Tim	31000H	Ros	O4IH	388	e	TX	124 1/2	72 1/2	34	40x2 1/2	54x3	N
26358	5.2	213	33.7	75-2400	L	G	C	7-3	12 1/2	FP	No	Str	VDR	DR	P.L	GO	GO	Tim	31000H	Ros	O4IH	388	e	TX	124 1/2	72 1/2	34	40x2 1/2	54x3	N
27350	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
28350	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
29404	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
30404	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
31404	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
32453	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
33453	5.1	218	32.4	45-1450	L	G	A	2-2 1/2	14 1/2	SP	Bf	Str	GAB	LN	dP.L	Ow	Spl	Tim	33000H	Ros	L04IDV	460	e	2I	115 1/2	63 1/2	34	40x2 1/2	54x3	N
34780	4.6	475	66.1	156-1800	L	G	A	7-3	16 1/2	FP	No	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	27450TW	Ros	T4IA	674	e	FD	146	84	34 1/2	42x3 1/2	54x4	N
35221	4.9	144	27.3	63-3000	L	G	C	4-2 1/2	9 1/2	CC	Ha	Zen	MAL	AL	P.B.B	Go	Spl	Tim	3000H	Ros	L4IH	269	D	TX	Opt	Opt	31 1/2	38x2 1/2	48x2 1/2	N
36255	5.1	175	27.3	69-2600	L	G	C	4-2 1/2	9 1/2	CC	Ha	Zen	MAL	AL	P.B.B	Go	Spl	Tim	3000H	Ros	L4IH	269	D	TX	Opt	Opt	31 1/2	38x2 1/2	48x2 1/2	N
37315	4.6	200	33.8	73-2300	L	G	C	7-2 1/2	12 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	31000H	Ros	L4IH	330	E	TX	Opt	Opt	31 1/2	38x2 1/2	50x3	N
38315	4.6	200	33.8	73-2300	L	G	C	7-2 1/2	12 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	31000H	Ros	L4IH	330	E	TX	Opt	Opt	31 1/2	38x2 1/2	50x3	N
39358	4.4	230	38.4	80-2500	L	G	C	7-2 1/2	12 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	35000H	Ros	L4IH	376	E	TX	Opt	Opt	32	40x2 1/2	50x3	N
40381	4.4	230	38.4	80-2500	L	G	C	7-2 1/2	12 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	35000H	Ros	L4IH	376	E	TX	Opt	Opt	32	40x2 1/2	50x3	N
41462	4.5	335	5.9	102-2400	L	G	C	7-3	13 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	35000H	Ros	L4IHV	665	E	FD	Opt	Opt	32	40x2 1/2	50x3	N
42517	4.5	335	5.9	102-2400	L	G	C	7-3	13 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	35000H	Ros	L4IHV	665	E	FD	Opt	Opt	32	40x2 1/2	50x3	N
43549	4.5	335	5.9	102-2400	L	G	C	7-3	13 1/2	CC	Wa	Sch	MDR	DR	D.B.L	Yo	Blo	Tim	35000H	Ros	L4IHV	665	E	FD	Opt	Opt	3			

Line Number	ENGINE DETAILS										FUEL SYST.	ELEC. TRICAL	FRONT AXLE	BRAKES		BODY MOUNTING DATA		SPRINGS		Auxiliary Type										
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Governor Make				Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make		Universal Make	Steering Gear Make	SERVICE		Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear	
								Piston Material	Oiling System Type														Number and Diameter	Length						Make, Location and Type	Lining Area	Drum Material
1214	4.9	142	27.3	61-3000		L	L	4-2 1/2	6 3/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Tim 3000OH	Ros	L4IH	380	a	TX	106 1/2	58 1/2	34	40x2 1/2	54x2 1/2	
1248	5.0	160	27.3	65-2700		L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Tim 3000OH	Ros	L4IH	452	a	TX	105 1/2	57 1/2	34	40x2 1/2	54x2 1/2	
1311	4.1	196	38.4	73-2400		H	H	7-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.L	Pe	Spi	Tim 3000OH	Ros	L4IH	578	a	TX	124 1/2	69 1/2	33 1/2	40x2 1/2	56x3	
5339	4.2	212	38.4	82-2400		H	H	7-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.L	Pe	Spi	Tim 3000OH	Ros	L4IH	659	a	DX	132	80 1/2	34	42x2 1/2	56x3	
6339	4.2	212	38.4	100-2600		H	H	7-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.L	Pe	Spi	Tim 3000OH	Ros	L4IHV	768	a	DX	132	80 1/2	34	42x2 1/2	56x3	
7427	4.2	267	45.9	60-2400		L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.L	Pe	Blo	Tim 3602OH	Ros	L4IHV	921	a	DX	132	78 1/2	33	48x3	60x3 1/2	
8228	4.4	143	27.3	60-2400		L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Cla F208A	Ros	L4IH	186	a	TX	93	51 1/2	34	42x2 1/2	50x2 1/2	
10263	4.4	164	31.5	68-2400		L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Cla F208	Ros	L4IH	252	a	TX	93	51 1/2	34	42x2 1/2	50x2 1/2	
11298	4.4	190	33.7	69-2400		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Cla F308	Ros	L4IHV	350	pa	TD	117	73 1/2	34	45 1/2 x 2 1/2	53x2 1/2	
12339	4.4	212	38.4	76-2400		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Cla F308	Ros	L4IHV	350	pa	TD	117	73 1/2	34	45 1/2 x 2 1/2	53x2 1/2	
13339	4.4	212	38.4	76-2400		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Shu 5582B	Ros	L4IHV	408	pa	TD	135	81 1/2	34	45 1/2 x 2 1/2	56x3	
14339	4.4	212	38.4	76-2400		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Shu 5582B	Ros	L4IHV	408	pa	TD	126	80 1/2	34	45 1/2 x 2 1/2	56x3	
15384	4.4	262	43.3	90-2200		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Shu 5582B	Ros	L4IHV	408	pa	TD	138	87 1/2	34	45 1/2 x 2 1/2	56x3	
16228	4.4	280	45.9	66-3200		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Shu 5582B	Ros	L4IHV	408	pa	TD	138	87 1/2	34	45 1/2 x 2 1/2	56x3	
17501	4.4	330	45.9	61-2200		L	L	4-2 1/2	13 1/4	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Shu 5582B	Ros	L4IHV	499	a	TD	120	79 1/2	34	45 1/2 x 2 1/2	56x3	
18529	4.4	350	51.3	114-2200		L	L	4-2 1/2	12 1/2	PP	No	Zen	M	DR	DR	P.B.B.	GO	Spi	Shu 678	Ros	Wa 4I	552	a	TD	138	89 1/2	34	46x3	56x3 1/2	
19299	4.9	198	33.7	85-2800		L	L	4-2 1/2	12 1/2	PP	No	Til	M	DR	DR	P.B.B.	Pe	Blo	Tim 3300OH	Ros	L4IHV	330	a	FD	120	77 1/2	34	42x2 1/2	50x3	
20196	4.6	124	21.0	48-2800		L	L	4-2 1/2	9 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Wa	O4IH	121	p	TX	53 1/2	26 1/2	42 1/2	35 1/2 x 1 1/2	53 1/2 x 1 1/2
21115	3.3	134	25.3	60-3200		L	L	4-2 1/2	6 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Wa	O4IH	121	p	TX	53 1/2	26 1/2	42 1/2	35 1/2 x 1 1/2	53 1/2 x 1 1/2
22196	4.6	124	21.0	48-2800		L	L	4-2 1/2	9 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Wa	O4IH	189	p	TX	66 1/2	31 1/2	37	39x2	48x2 1/2
23208	4.6	124	21.0	48-2800		L	L	4-2 1/2	9 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Wa	O4IH	189	p	TX	66 1/2	31 1/2	37	39x2	48x2 1/2
24196	4.6	124	21.0	48-2800		L	L	4-2 1/2	9 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Ha	O4IH	206	p	TX	85 1/2	50 1/2	37 1/2	39x2	48x2 1/2
25208	5.1	132	27.3	63-3200		L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Ha	O4IH	206	p	TX	85 1/2	50 1/2	37 1/2	39x2	48x2 1/2
26196	4.6	124	21.0	48-2800		L	L	4-2 1/2	9 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Own	O4IH	175	a	TX	91 1/2	50 1/2	34	36x1 1/2	48x2 1/2
27211	5.3	134	25.3	60-3100		L	L	4-2 1/2	6 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Own	O4IH	175	a	TX	91 1/2	50 1/2	34	36x1 1/2	48x2 1/2
28217	5.3	134	25.3	75-3200		L	L	4-2 1/2	7 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Own	O4IH	229	a	TX	145	84 1/2	38 1/2	39x2	48x2 1/2
29196	4.6	124	21.0	48-2800		L	L	4-2 1/2	9 1/4	PP	No	Car	M	DR	DR	P.B.B.	Fe	Own	Own	Own	Wa	O4IH	187	a	TX	88 1/2	52 1/2	37 1/2	39x2	48x2 1/2
30211	5.2	134	25.3	66-3200		L	L	4-2 1/2	6 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Lo	Own	Own	Own	Ha	O4IH	305	a	TX	119 1/2	62 1/2	34	40x2 1/2	56x3
32309	4.7	200	31.5	96-3000		L	L	4-2 1/2	11 1/4	PP	No	Car	M	DR	DR	P.B.B.	Lo	Own	Own	Own	Jac	O4IH	350	a	CD	124 1/2	69 1/2	33 1/2	42x3	56 1/2 x 3 1/2
33241	5.3	167	27.3	78-3000		L	L	4-2 1/2	11 1/4	PP	No	Car	M	DR	DR	P.B.B.	Lo	Own	Own	Own	Jac	O4IH	382	p	TX	82 1/2	54 1/2	34	39x2 1/2	45x3
34309	4.7	200	31.5	96-3000		L	L	4-2 1/2	11 1/4	PP	No	Car	M	DR	DR	P.B.B.	Lo	Own	Own	Own	Jac	O4IH	416	a	CD	149 1/2	89 1/2	34	42x3	56x3 1/2
35384	5.0	262	39.2	115-3000		L	L	4-2 1/2	13 1/4	PP	No	Car	M	DR	DR	P.B.B.	Lo	Own	Own	Own	Jac	BW4IH	650	a	CD	149 1/2	89 1/2	34	42x3	56x3 1/2
36214	5.0	27.3	61-3000		L	L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Cla F208	Ros	L4IH	377	p	FX	96	58 1/2	34	39 1/2 x 2	49x2 1/2	
37226	4.0	136	22.5	36-1800		L	L	4-2 1/2	7 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Cla F208	Ros	L4IH	377	p	FX	96	58 1/2	34	39 1/2 x 2	49x2 1/2	
38241	4.5	143	25.3	47-2500		L	L	4-2 1/2	9 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Shu 510	Ros	W2IM	538	a	TX	110	72	31	46x2 1/2	52x2 1/2	
39263	4.2	125	25.6	43-2000		L	L	4-2 1/2	9 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Shu 510	Ros	W2IM	538	a	TX	110	72	31	46x2 1/2	52x2 1/2	
40331	4.5	200	31.7	73-2400		L	L	4-2 1/2	9 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Shu 510	Ros	W2IM	538	a	TX	110	72	31	46x2 1/2	52x2 1/2	
41312	4.0	174	28.9	49-1900		L	L	4-2 1/2	10 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Shu 5550	Ros	W2IM	538	a	TX	192	104	31	46x2 1/2	54x3	
42331	4.5	200	31.7	73-2400		L	L	4-2 1/2	9 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Shu 5550	Ros	W2IMV	538	a	TX	192	104	31	46x2 1/2	54x3	
43381	4.1	132	25.3	50-1400		L	L	4-2 1/2	9 1/4	PP	No	Zen	M	DR	DR	P.B.B.	Mo	MM	Shu 5550	Ros	W2									

Line Number	MAKE AND MODEL	GENERAL (See Keynote)					TIRE SIZE		MAJOR UNITS										FRAME	
		Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE				Side Rail Dimensions	Type	
										Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive and Torque			GEAR RATIOS
																			In High	In Low
1	Gramm. AX4	1-1 1/2	795	131	157	8000	3350	B6.50/20	B6.50/20	Con W10	4-3 1/2 x 4 1/2	WG TA	U4	No	Tim 53200H	BF	H 5.66	36.3	6x2 1/2 x 1 1/2	C
2	AX6	1-1 1/2	895	131	157	8000	3550	B6.50/20	B6.50/20	Con 25A	4-3 1/2 x 4 1/2	WG T9	U4	No	Tim 53200H	BF	H 5.66	36.3	6x2 1/2 x 1 1/2	C
3	BX4	1-1 1/2	895	131	210	10000	3525	B6.00/20	DB6.00/20	Con W10	4-3 1/2 x 4 1/2	WG T9	U4	No	Tim 53200H	BF	H 6.2	39.6	6x2 1/2 x 1 1/2	L
4	BX6	1-1 1/2	995	131	210	10000	3725	B6.00/20	DB6.00/20	Con 25A	4-3 1/2 x 4 1/2	WG T9	U4	No	Tim 53200H	BF	H 6.2	39.6	6x2 1/2 x 1 1/2	L
5	BX6	1-1 1/2	1495	131	210	10000	4000	B6.00/20	DB6.00/20	Lyc ASD	6-3 1/2 x 4 1/2	BL 314	U4	No	Tim 53200	BF	H 5.6	37	6x2 1/2 x 1 1/2	C
6	B2	2-3	1295	140	196	12000	4150	B6.50/20	DB6.50/20	Lyc ASD	6-3 1/2 x 4 1/2	Co A4J	U4	No	Tim 54200H	BF	H 5.83	37.1	6x2 1/2 x 1 1/2	C
7	BF 2-3	2-3	1695	140	210	12000	4300	B6.50/20	DB6.50/20	Lyc ASD	6-3 1/2 x 4 1/2	BL 314	U4	No	Tim 54200	BF	H 5.8	37.1	6x2 1/2 x 1 1/2	C
8	CF 2-3	2-3	1095	131	210	12000	3950	B6.50/20	DB6.50/20	Con W20	4-4 1/2 x 4 1/2	WG T9	U4	No	Tim 54200H	BF	H 5.8	37.0	10x2 1/2 x 1 1/2	B
9	CF 2-3	2-3	1295	131	210	12000	4150	B6.50/20	DB6.50/20	Con 16C	6-3 1/2 x 4 1/2	WG T9	U4	No	Tim 54200H	BF	H 5.8	37.0	10x2 1/2 x 1 1/2	B
10	CF 2-3	2-3	1795	160	224	14000	4820	B7.00/20	DB7.00/20	Lyc AS	6-3 1/2 x 4 1/2	BL 314	U4	No	Tim 54200H	BF	H 5.8	37.1	7x2 1/2 x 1 1/2	C
11	CF 2-3 1/2	2-3 1/2	1895	160	224	14000	4900	B7.50/20	DB7.50/20	Lyc ASD	6-3 1/2 x 4 1/2	BL 314	U4	No	Tim 54200	BF	H 5.8	37.1	7x2 1/2 x 1 1/2	C
12	CF 2-3 1/2	2-3 1/2	2395	160	224	14000	5100	B7.50/20	DB7.50/20	Con 20R	6-4 1/2 x 4 1/2	BL 554	U4	No	Tim 54200	BF	H 5.8	41.6	7x2 1/2 x 1 1/2	C
13	D 2-3 1/2	2-3 1/2	1995	160	224	17000	5100	B7.50/20	DB7.50/20	Lyc ASD	6-3 1/2 x 4 1/2	BL 314	U4	No	Tim 56200H	BF	H 6.1	39.0	7x2 1/2 x 1 1/2	C
14	DF 2-3 1/2	2-3 1/2	2695	160	260	17000	5300	B7.50/20	DB7.50/20	Con 21R	6-4 1/2 x 4 1/2	BL 554	U4	No	Tim 56200	BF	H 6.1	43.5	7x2 1/2 x 1 1/2	C
15	E330	3-4 1/2	2595	160	224	20000	5950	B8.25/20	DB8.25/20	Lyc TS	6-3 1/2 x 5	BL 554	U4	No	Tim 58200H	BF	H 5.5	35.6	12x2 1/2 x 1 1/2	L
16	EY190	3	3595	190	190	16000	6750	B7.50/20	DB7.50/20	Con 20R	6-4 1/2 x 4 1/2	Co Rus4	U4	No	Tim 58200H	BF	H 4.5	29.1	8 1/2 x 3 1/2 x 1 1/2	L
17	GY4	4	4345	190	210	18000	7700	B8.25/20	DB8.25/20	Con 21R	6-4 1/2 x 4 1/2	Co Rus	U4	No	Tim 59317H	2F	H 4.3	27.9	8 1/2 x 3 1/2 x 1 1/2	L
18	GY4	4	3695	150	225	24000	7950	B9.00/20	DB9.00/20	Con 21R	6-4 1/2 x 4 1/2	BL 554	U4	No	Tim 59317H	2F	H 6.8	49.0	12x2 1/2 x 1 1/2	P
19	GW 5-7 1/2	5-7 1/2	5175	157	240	28000	9500	B9.00/20	DB9.00/20	Con 21R	6-4 1/2 x 4 1/2	BL 554	U4	No	Tim 1627KW	2F	H 6.3	41.0	7 1/2 x 3 1/2 x 1 1/2	P
20	HY 5	5	6595	210	236	22000	10100	B9.00/20	DB9.00/20	Con 16H	6-4 1/2 x 5 1/2	Fu HU16	U4	No	Tim 12527KW	2F	H 4.0	25.2	8 1/2 x 3 1/2 x 1 1/2	P
21	G.-P.	35-6-1 1/2	1535	156	160	9500	3800	B7.00/20	DB7.00/20	Lyc WTG	6-3 1/2 x 4 1/2	Fu MKU	U4	No	Tim 53200H	SF	H 5.37	34.9	8x2 1/2 x 1 1/2	TL
22	(7) 45-6-3-4	5-6-3-4	2700	157	161	12500	4300	B7.50/20	DB7.50/20	Lyc SB	6-3 1/2 x 4 1/2	Fu MLU	U4	No	Tim 54200H	SF	H 6.35	38.0	8x2 1/2 x 1 1/2	TL
23	(7) 45-6-3-4	5-6-3-4	3185	154	191	15000	5900	B8.25/20	DB8.25/20	Lyc ASD	6-3 1/2 x 4 1/2	Fu JVUOG	U5	No	Tim 56200H	SF	H 7.25	55.0	9x3 1/2 x 1 1/2	TL
24	(7) 55-6-3-4	5-6-3-4	3875	158	195	17500	7100	B9.00/20	DB9.00/20	Lyc TS	6-3 1/2 x 5	Fu VUOG	U5	No	Tim 58200H	SF	H 7.00	56.0	10x3 1/2 x 1 1/2	TL
25	75-6-4-6	6-4-6	4915	154	191	20000	7400	B9.75/20	DB9.75/20	Wau SRL	6-4 1/2 x 5 1/2	Fu VUOG	U5	No	Tim 1137H	2F	H 7.75	65.0	11x3 1/2 x 1 1/2	TL
26	75-6-4-6	6-4-6	4860	174	Op	20000	7500	B9.75/20	DB9.75/20	Lyc AEC	8-3 1/2 x 4 1/2	Fu VUOG	U5	No	Tim 1137H	2F	H 7.25	51.2	11x3 1/2 x 1 1/2	TL
27	75-6-5-7	6-5-7	6875	169	Op	24000	9200	B10.50/20	DB10.50/20	Wau GAB	6-4 1/2 x 5 1/2	Fu MHU	U4	No	Tim 1567H	2F	H 9.00	113.0	12x3 1/2 x 1 1/2	TL
28	75-6-5-7	6-5-7	10400	159	196	33000	10400	B10.50/24	DB10.50/24	Lyc ASD	6-3 1/2 x 5	Fu MHU	U4	No	Tim 19000H	2F	H 10.1	125.0	14x3 1/2 x 1 1/2	TL
29	(7) 35-6-6	5-6-6	1595	152	161	12500	4050	B7.50/20	DB7.50/20	Lyc ASD	6-3 1/2 x 4 1/2	Fu MKU	U4	No	Tim 53200H	SF	H 5.37	34.9	8x2 1/2 x 1 1/2	TL
30	(7) 45-6-8	5-6-8	3185	149	171	15000	4425	B8.25/20	DB8.25/20	Lyc TS	6-3 1/2 x 5	Fu JVUOG	U5	No	Tim 54000H	SF	H 6.35	45.2	8x2 1/2 x 1 1/2	TL
31	65-6-10	6-10	4170	162	179	17500	7850	B9.00/20	DB9.00/20	Wau SRL	6-4 1/2 x 5 1/2	Fu VUOG	U5	No	Tim 58200H	SF	H 7.57	55.1	10x3 1/2 x 1 1/2	TL
32	65-6-10	6-10	4230	162	179	17500	7850	B9.00/20	DB9.00/20	Lyc AEC	8-3 1/2 x 4 1/2	Fu VUOG	U5	No	Tim 58200H	2F	H 7.57	55.1	10x3 1/2 x 1 1/2	TL
33	75-6-12	6-12	5445	162	179	17500	8850	B9.75/20	DB9.75/20	Wau SRK	6-4 1/2 x 5 1/2	Fu VUDG	U5	No	Tim 1137W	2F	H 8.1	56.6	11x3 1/2 x 1 1/2	TL
34	75-6-12	6-12	5400	162	179	17500	8850	B9.75/20	DB9.75/20	Lyc AED	8-3 1/2 x 4 1/2	Fu VUOG	U5	No	Tim 1137W	2F	H 8.1	56.6	11x3 1/2 x 1 1/2	TL
35	Hahn-Seiden.	17 1 1/2	1500	142	162	7900	3750	P32x6	P32x6	Con 16C	6-3 1/2 x 4 1/2	BL 20	U4	No	Tim 52000H	BF	H 5.8	24.1	5 1/2 x 2 1/2 x 1 1/2	P
36	317 1 1/2	1 1/2	1610	142	162	7900	3900	P32x6	P32x6	Con 18R	6-3 1/2 x 4 1/2	BL 35	U4	No	Tim 52000H	BF	H 5.8	31.1	5 1/2 x 2 1/2 x 1 1/2	P
37	1935 1 1/2	1 1/2	1935	151	181	10000	4800	P32x6	DP32x6	Con 16C	6-3 1/2 x 4 1/2	BL 35	U4	No	Tim 54200H	BF	H 5.8	31.1	5 1/2 x 2 1/2 x 1 1/2	P
38	2920 1 1/2	1 1/2	2920	164	190	13000	5800	P32x6	DP32x6	Con 16R	6-4 1/2 x 1 1/2	BL 35	U4	No	Tim 56200H	BF	H 6.1	33.7	7x3 1/2 x 1 1/2	C
39	47B3	3	3785	151	198	15500	7200	P34x7	DP34x7	Con 18R	6-4 1/2 x 1 1/2	BL 51	U4	No	Tim 58000H	BF	H 6.8	37.7	7x3 1/2 x 1 1/2	P
40	47D1	4	4435	151	198	19500	8700	P36x8	DP36x8	Con 18R	6-4 1/2 x 1 1/2	BL 51	U5	No	Tim 1237H	2F	H 7.3	43.8	7x3 1/2 x 1 1/2	P
41	47D1	4	4700	151	198	23500	8700	P36x8	DP36x8	Con 21R	6-4 1/2 x 1 1/2	BL 55	U5	No	Tim 1237H	2F	H 7.3	43.8	7x3 1/2 x 1 1/2	P
42	Hendrickson.	178 2 1/2	3350	Op	Op	17000	6500	B8.25/20	DB8.25/20	Wau MK	6-4 1/2 x 4 1/2	Fu JVU	U5	No	Tim 54000H	2B	R Opt	Opt	6x2 1/2 x 1 1/2	P
43	198 3	3	3800	Op	Op	19000	7000	B9.00/20	DB9.00/20	Wau MK	6-4 1/2 x 4 1/2	Fu JVU	U5	No	Tim 54000H	2B	R Opt	Opt	6x2 1/2 x 1 1/2	P
44	U6-24-4	24-4	5500	Op	Op	24000	8200	B9.75/20	DB9.75/20	Wau 6SR1	6-4 1/2 x 5 1/2	BL 60-7	A7	No	Tim 76730	2F	H 6.3	45.8	8x3 1/2 x 1 1/2	P
45	23-2	2	1785	146	191	11620	5620	B7.00/20	DB7.00/20	Bud H298	6-3 1/2 x 4 1/2	Fu MLU	U4	No	Tim 54000H	SF	H 5.66	36.3	6x3 1/2 x 1 1/2	T
46	61-2	2	3020	111	111	14210	5400	B8.25/20	DB8.25/20	Bud H298	6-3 1/2 x 4 1/2	BL 51-4	A7	No	Tim 54000H	SF	H 5.66	36.3	6x3 1/2 x 1 1/2	T

Type	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL	FRONT AXLE	BRAKES		BODY MOUNT-ING DATA		SPRINGS		Auxiliary Type														
	Line Number	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS				Oiling System Type	Governor Make	Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make		Clutch Type and Make	Radiator Make	Universals Make	Make and Model	Steering Gear Make	SERVICE		Hand Type, Location	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear	
										Number and Diameter																Length	Lining Area							Drum Material
C	1	200	4.7	121	24	0	50-2800	L	CC	3	5 1/2	PP	No	Til	MAL	AL	D.Jo	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	2	214	5.3	142	27	4	71-3200	L	CC	3	5 1/2	PP	No	Til	MAL	AL	D.Jo	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	3	200	4.7	121	24	0	50-2800	L	CC	3	5 1/2	PP	No	Til	MAL	AL	D.Jo	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	4	214	5.3	142	27	4	71-3200	L	CC	3	5 1/2	PP	No	Til	MAL	AL	D.Jo	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	5	299	4.9	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	6	224	4.7	146	25	3	61-2900	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	7	299	4.9	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	8	227	4.7	136	27	2	55-2400	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	9	248	5.0	150	27	4	70-3000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	10	278	4.7	182	31	5	85-3300	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	11	299	4.9	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	12	380	4.3	238	40	8	88-4000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	13	299	4.9	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	14	428	4.1	268	45	9	100-2200	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	15	353	4.8	245	36	2	98-2700	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	16	380	4.3	238	40	8	88-4000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	17	428	4.1	268	45	9	100-2200	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	18	428	4.1	268	45	9	100-2200	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	19	428	4.1	268	45	9	100-2200	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	20	611	4.1	382	54	1	127-2300	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	21	201	5.5	140	21	6	63-2900	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	22	345	4.7	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	23	298	4.5	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	24	353	4.8	245	36	2	98-2700	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	25	462	4.6	300	45	0	100-2400	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	26	420	5.2	300	45	0	130-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	27	549	4.5	335	48	6	100-2000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	28	677	4.4	460	60	0	125-2000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	29	298	4.5	198	33	7	85-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	30	353	4.8	245	36	2	98-2700	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	31	462	5.1	300	45	0	100-2400	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	32	420	5.2	300	45	0	130-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	33	517	4.5	340	51	3	110-2500	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	34	420	5.2	300	45	0	130-2800	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	35	214	5.0	137	27	3	66-3000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	36	248	5.0	150	27	4	70-3000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 1/2	34	36x2 1/2	45x2 1/2				
L	37	248	5.0	150	27	4	70-3000	L	CC	4	6 1/2	PC	No	Til	MAL	AL	P.B.L	Pe	Blo	Tim 3000OH	Ros	L4IH	249	D	FD	81 1/2	51 5							

Line Number	MAKE AND MODEL	Tonnage Rating	GENERAL (See Keynote)			TIRE SIZE		MAJOR UNITS										FRAME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
			Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE				Side Rail Dimensions	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
										Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Make and Model	Location and Forward Speeds	Gear and Type	Drive and Torque			GEAR RATIOS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Line Number	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL	FRONT AXLE	BRAKES	BODY MOUNT-ING DATA				SPRINGS		Auxiliary Type												
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Oiling System Type					Governor Make	Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make		Radiator Make	Universals Make	Make and Model	Steering Gear Make	SERVICE		Hand Type, Location	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear
								Number and Diameter	Length																	Make, Location and Type	Lining Area							Drum Material
1	248	4.4	150	27.3	65-2800	L	L	7-2 3/4	10 1/2	PC	No	Str	M	DR	DR	D.B.L	Ch	Spl	Tim	30000H	Ros	L4IH	275	C	TX	96	58	34	37 1/2 x 2 1/2	40 1/2 x 2 1/2	N		
2	248	4.4	150	27.3	65-2800	L	L	7-2 3/4	10 1/2	PC	No	Str	M	DR	DR	D.B.L	Ch	Spl	Tim	30000H	Ros	L4IH	275	C	TX	128	81	34	37 1/2 x 2 1/2	50 1/2 x 2 1/2	N		
3	248	4.4	150	27.3	65-2800	L	L	7-2 3/4	10 1/2	PC	No	Str	M	DR	DR	D.B.L	Ch	Spl	Tim	30000H	Ros	L4IH	293	C	TX	128	81	34	37 1/2 x 2 1/2	50 1/2 x 2 1/2	N		
4	315	4.6	200	33.7	72-2500	L	L	7-2 3/4	12 1/2	PC	No	Str	M	DR	DR	D.B.L	Ch	Spl	Tim	33000H	Ros	L4IH	345	C	TX	128	81	34	37 1/2 x 2 1/2	50 1/2 x 2 1/2	N		
5	381	4.4	242	40.8	85-2500	L	L	7-2 3/4	12 1/2	PC	No	Str	M	DR	DR	D.B.L	Ch	Spl	Tim	35000H	Ros	L4IHV	385	C	CD	128	81	34	39 1/2 x 2 1/2	53 1/2 x 2 1/2	N		
6	462	4.5	300	45.9	98-2000	L	L	7-3	13 1/2	PC	No	Str	M	DR	DR	D.Fu	Ch	Spl	Tim	35000H	Ros	L4IHV	385	C	CD	128	81	34	39 1/2 x 2 1/2	53 1/2 x 2 1/2	N		
7	462	4.5	300	45.9	98-2000	L	L	7-3	13 1/2	PC	No	Str	M	DR	DR	D.Fu	Ch	Spl	Tim	35000H	Ros	L4IHV	385	C	CD	128	81	34	39 1/2 x 2 1/2	53 1/2 x 2 1/2	N		
8	298	4.7	183	31.5	83-2800	L	L	7-2 3/4	9 1/2	FP	Ha	Str	M	DR	DR	P.B.L	Pe	Spl	Tim	31000H	Ros	L4IH	485	C	RI	128	81	34	38 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
9	298	4.7	183	31.5	83-2800	L	L	7-2 3/4	9 1/2	FP	Ha	Str	M	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
10	331	4.5	200	33.7	73-2100	L	L	7-2 3/4	9 1/2	FP	Bu	Str	V	DR	DR	D.B.L	Pe	Spl	Tim	35020H	Ros	L4IHV	412	A	FD	107 1/2	70	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
11	411	4.5	272	40.8	103-2100	L	L	7-3	9 1/2	FP	Ha	Str	M	DR	DR	D.B.L	Pe	Spl	Tim	35020H	Ros	L4IHV	412	A	TD	104 1/2	68	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
12	411	4.5	272	40.8	103-2100	L	L	7-3	9 1/2	FP	Ha	Str	M	DR	DR	D.B.L	Pe	Spl	Tim	35020H	Ros	L4IHV	527	A	TD	104 1/2	68	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
13	479	4.5	318	51.2	102-2000	L	L	7-3	14 1/2	PC	Ha	Str	Zen	M	DR	DR	D.B.L	Pe	Spl	Tim	26450TW	Ros	W41A	618	A	TD	144	95	33	42 1/2 x 2 1/2	58 1/2 x 2 1/2	N	
14	479	4.5	318	51.2	102-2000	L	L	7-3	14 1/2	PC	Ha	Str	Zen	M	DR	DR	D.B.L	Pe	Spl	Tim	26450TW	Ros	W41A	618	A	TD	144	95	33	42 1/2 x 2 1/2	58 1/2 x 2 1/2	N	
15	248	4.4	150	27.3	65-2800	L	L	7-2 3/4	10 1/2	PC	No	Str	M	DR	DR	D.B.L	Ch	Spl	Tim	30000H	Ros	L4IH	275	C	TX	96	58	34	37 1/2 x 2 1/2	40 1/2 x 2 1/2	N		
16	309	4.7	183	31.5	75-2500	L	L	7-2 3/4	11 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
17	309	4.7	183	31.5	75-2500	L	L	7-2 3/4	11 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
18	283	4.4	176	28.9	63-2100	L	L	7-2 3/4	8 1/2	PS	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	35020H	Ros	L4IHV	412	A	FD	107 1/2	70	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
19	283	4.4	176	28.9	63-2100	L	L	7-2 3/4	8 1/2	PS	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	35020H	Ros	L4IHV	412	A	FD	107 1/2	70	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
20	309	4.7	183	31.5	75-2500	L	L	7-2 3/4	11 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
21	309	4.7	183	31.5	75-2500	L	L	7-2 3/4	11 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
22	414	4.5	261	38.4	94-2400	L	L	7-3	13 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
23	414	4.5	261	38.4	94-2400	L	L	7-3	13 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
24	414	4.5	261	38.4	94-2400	L	L	7-3	13 1/2	FP	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
25	525	4.8	350	48.6	125-2300	L	L	7-3 1/2	13 1/2	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
26	471	3.9	320	40	75-1800	L	L	7-3	10 1/2	PS	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
27	471	3.9	320	40	75-1800	L	L	7-3	10 1/2	PS	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
28	525	4.8	350	48.6	125-2300	L	L	7-3 1/2	13 1/2	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
29	471	3.9	320	40	75-1800	L	L	7-3	10 1/2	PS	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
30	525	4.8	350	48.6	125-2300	L	L	7-3 1/2	13 1/2	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
31	706	4.8	542	60	138-1900	L	L	7-3 1/2	11 1/2	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
32	383	4.7	212	38.4	76-2400	L	L	7-2 3/4	13 1/2	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
33	480	4.4	251	51.2	103-2200	L	L	7-3	15	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
34	529	4.9	315	51.2	115-2200	L	L	7-3	15	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
35	707	4.5	501	60	150-2000	L	L	7-3 1/2	17	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
36	855	4.5	572	60	180-2000	L	L	7-3 1/2	17	PC	Ha	Str	V	DR	DR	P.B.L	Pe	Spl	Tim	14703H	Ros	L4IHV	343	A	TX	114	72	32	42 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
37	248	4.5	150	27.3	70-3200	L	L	7-2 3/4	10 1/2	PC	No	Str	M	DR	DR	P.B.L	Pe	Spl	Tim	30000H	Ros	L4IH	270	A	TD	132	78	34	40 1/2 x 2 1/2	54 1/2 x 2 1/2	N		
38	248	4.5	150	27.3	70-3200	L	L	7-2 3/4	10 1/2	PC	No	Str	M	DR	DR	P.B.L	Pe	Spl	Tim	30000H	Ros	L4IH	315	A	TD	13							

Line Number	MAKE AND MODEL	Wheels Driven—6-Wheelers	GENERAL (See Keynote)			TIRE SIZE		MAJOR UNITS										FRAME		
			Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE		GEAR RATIOS	Side Rail Dimensions	Type	
											Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model				Gear and Type	Drive and Torque	In High	In Low
1	Sterling	FC107	5-6	5200	192	222	8200	P36x8	DP36x8	Wau 6SRL	6-4 1/2 x 5 1/2	Own UC2	U 4	Op	Own	CD	R 8.20	54.6	12x3 1/4 x 1 1/4	C
2	(concluded)	FC120	6-7	5350	192	222	8550	P40x8	DP40x8	Wau 6MK	6-4 1/2 x 5 1/2	Own UC2	U 4	Op	Own	CD	R 9.3	62.2	12x3 1/4 x 1 1/4	C
3		FC120S	7-8	5650	192	222	8400	B9.75/20	DB9.75/20	Wau 6SRL	6-4 1/2 x 5 1/2	Own UC2	U 4	J 3	Own	CD	R 8.66	61.7	12x3 1/4 x 1 1/4	C
4		FW140	7-8	6070	192	222	10050	P40x8	DP42x9	Wau SRL	6-4 1/2 x 5 1/2	Own UC2	U 4	Op	Tim	w/2	R 10.0	66.6	15x3 1/4 x 1 1/4	C
5		FC135	7-8	5825	192	222	8900	P40x8	DP40x8	Wau SRL	6-4 1/2 x 5 1/2	Own UC2	U 4	Op	Own	CD	R 9.3	62.2	15x3 1/4 x 1 1/4	C
6		FC140	8-9	6500	200	230	9350	P40x8	DP40x8	Wau HB	6-4 1/2 x 5 1/2	Own UC2	U 4	Op	Own	CD	R 8.3	55.2	15x3 1/4 x 1 1/4	C
7		FC145	8-9	6925	200	230	10100	P40x8	DP40x8	Wau AB	6-4 1/2 x 5 1/2	Own UC8	U 4	Op	Own	CD	R 9.4	58.9	15x3 1/4 x 1 1/4	C
8		FW170	9-10	6070	200	230	10550	P40x8	DP44x10	Wau AB	6-4 1/2 x 5 1/2	Own UC8	U 4	Op	Tim	w/2	R 10.0	62.7	15x3 1/4 x 1 1/4	C
9		FC170	9-10	7595	200	230	10550	P40x8	DP42x9	Wau RB	6-5 1/2 x 5 1/2	Own UC8	U 4	Op	Own	CD	R 9.4	58.9	15x3 1/4 x 1 1/4	C
10	Stewart	30X1	30 1	695	130	160	2977	B6.50/20	B6.50/20	Lyc AFE	4-3 1/2 x 4 1/2	War	U 4	No	Cla	CD	H 5.6	35.8	6x2 1/4 x 1 1/4	T
11		40XA	1 1/2	795	134	176	3018	B6.50/20	B6.50/20	Lyc WTG	6-3 1/2 x 4 1/2	WG T9	U 4	No	Cla	CD	H 6.38	40.8	6x2 1/4 x 1 1/4	T
12		42X	1 1/2	995	145	176	3250	B6.50/20	B6.50/20	Lyc SA	6-3 1/2 x 4 1/2	War	U 4	No	Cla	CD	H 5.6	35.8	7 1/2 x 2 1/4 x 1 1/4	T
13		43X	2	995	145	176	3460	B6.50/20	DB6.50/20	Lyc SB	6-3 1/2 x 4 1/2	WG	U 4	No	Cla	CD	H 6.3	22.7	7 1/2 x 2 1/4 x 1 1/4	T
14		50X	2 1/2	1195	145	176	4015	B6.50/20	DB6.50/20	Lyc SB	6-3 1/2 x 4 1/2	War	U 4	No	Cla	CD	H 6.37	22.0	7 1/2 x 2 1/4 x 1 1/4	T
15		29X8	2 1/2	1695	145	190	4960	B7.00/20	DB7.00/20	Lyc ASD	6-3 1/2 x 4 1/2	Ful	U 4	No	Cla	CD	H 6.37	44.4	7 1/2 x 2 1/4 x 1 1/4	T
16		32X	2 1/2	1990	165	220	5260	B7.00/20	DB7.00/20	Lyc ASD	6-3 1/2 x 4 1/2	Fu	U 4	No	Cla	CD	H 6.37	44.4	7 1/2 x 2 1/4 x 1 1/4	T
17		58-8	2 1/2	2390	170	226	5970	B7.50/20	DB7.50/20	Lyc HFA	6-3 1/2 x 4 1/2	Fu	U 4	No	Cla	CD	H 7.25	47.7	9x2 1/4 x 1 1/4	T
18		18X	3	2690	165	220	6400	B7.50/20	DB7.50/20	Lyc TS	6-3 1/2 x 5	Fu	U 4	No	Tim	WF	R 7.25	47.7	9x2 1/4 x 1 1/4	T
19		29X	3 1/2	3690	165	235	7110	B9.00/20	DB9.00/20	Lyc AEC	8-3 1/2 x 4 1/2	BL	U 4	A 3	Cla	SE	F 7.12	50.1	9x2 1/4 x 1 1/4	T
20		38-6	3 1/2	3990	170	241	7600	B9.00/20	DB9.00/20	Lyc TS	6-3 1/2 x 5	Fu	U 4	A 3	Tim	WF	R 7.25	127.0	9x2 1/4 x 1 1/4	T
21		38-8	3 1/2	3990	170	241	7600	B9.00/20	DB9.00/20	Wau 6SRL	6-4 1/2 x 5 1/2	BL	U 4	A 3	Tim	DF	R 8.2	151.9	9x2 1/4 x 1 1/4	T
22		31X	5	5190	165	235	9340	B9.75/20	DB9.75/20	Lyc AE	8-3 1/2 x 4 1/2	BL	U 4	A 3	Tim	DF	R 7.3	147.0	9x2 1/4 x 1 1/4	T
23		27X5	5 1/2	6190	165	235	10300	B10.50/24	DB10.50/24	Wau 6SRK	6-4 1/2 x 5 1/2	BL	U 4	A 3	Tim	WF	R 6.56	93.8	9x2 1/4 x 1 1/4	T
24	Studebaker	81	1 1/2	595	114	144	2330	B5.25/19	B5.25/19	Own GL	6-3 1/2 x 4 1/2	WG T2C	U 3	No	Own 54	S 1/2	H 4.73	19.5	5 1/2 x 2 1/4 x 1 1/4	T
25		S41	2	895	141	165	3930	B6.50/20	P32x6	Own T1	6-3 1/2 x 4 1/2	War T9	U 4	No	Cla B373	SE	H 5.66	35.8	6x2 1/4 x 1 1/4	T
26		S120	3	1350	141	183	4855	B6.50/20	DB6.50/20	Own T2	6-3 1/2 x 4 1/2	War T9	U 4	No	Tim 54200	SE	H 6.8	43.5	7x2 1/4 x 1 1/4	T
27	Walter	FN	2 1/2-3	4500	120	150	6500	B9.00/20	B9.00/20	Own T2	6-3 1/2 x 4 1/2	War T9	U 4	A 2	Tim 58200	SE	H 6.8	66.1	8x2 1/4 x 1 1/4	T
28		FM	3 1/2-4	5500	120	144	7500	B9.00/20	DB9.00/20	Own 6MK	6-4 1/2 x 4 1/2	Own FN	U 5	No	Own F	2D	H 7.0	70.0	7x2 1/4 x 1 1/4	P
29		FKD	4-5	6300	118	136	8000	B9.00/24	DB9.00/24	Own 6SRL	6-4 1/2 x 5 1/2	Own FN	U 5	No	Own F	2D	H 6.0	70.0	7x2 1/4 x 1 1/4	P
30		FC	5-7	6900	136	160	9000	B9.75/24	DB9.75/24	Own 6SRL	6-4 1/2 x 5 1/2	Own FN	U 5	No	Own F	2D	H 6.0	70.0	7x2 1/4 x 1 1/4	P
31		FBS	5-7	7900	136	160	9000	B9.75/24	DB9.75/24	Own 6SRL	6-4 1/2 x 5 1/2	Own FN	U 5	No	Own F	2D	H 6.0	70.0	7x2 1/4 x 1 1/4	P
32		FBS	5-7	8300	136	160	10000	B10.50/24	DB10.50/24	Own 6RB	6-5 1/2 x 5 1/2	Own FN	U 5	No	Own F	2D	H 6.0	70.0	7x2 1/4 x 1 1/4	P
33	Ward LaFr.	25R143	3	2975	Op	Op	6200	B8.25/20	DB8.25/20	Own 6RB	6-5 1/2 x 5 1/2	Own FN	U 5	No	Own F	2D	H 6.0	70.0	7x2 1/4 x 1 1/4	P
34		253143	3	2975	Op	Op	6200	B8.25/20	DB8.25/20	Wau 6ML	6-4 1/2 x 4 1/2	BL	U 4	No	Tim 56200H	SE	R 8.5	85.0	13x3 1/4 x 1 1/4	P
35		30B184	4	3585	197	209	7000	B9.00/20	DB9.00/20	Own	6-3 1/2 x 4 1/2	BL	U 4	No	Tim 56200H	SE	R 8.5	85.0	13x3 1/4 x 1 1/4	P
36		30R184	4	3585	197	209	7000	B9.00/20	DB9.00/20	Own	6-3 1/2 x 4 1/2	BL	U 4	Op	Tim 65200H	SE	R 8.5	85.0	13x3 1/4 x 1 1/4	P
37		35R5	5	8790	Op	Op	8700	B9.75/20	DB9.75/20	Wau 6MK	6-4 1/2 x 4 1/2	BL	U 4	Op	Tim 65200H	SE	R 8.5	85.0	13x3 1/4 x 1 1/4	P
38		35B5	5	8790	Op	Op	8700	B9.75/20	DB9.75/20	Lyc	6-3 1/2 x 4 1/2	BL	U 4	Op	Tim 65720H	WF	R 8.5	85.0	13x3 1/4 x 1 1/4	P
39		75RW	7 1/2	6900	Op	Op	10500	B10.50/20	DB10.50/20	Wau RB	6-5 1/2 x 5 1/2	BL714	U 4	A 3	Tim 66720W	WF	R 8.5	85.0	13x3 1/4 x 1 1/4	P
40		100RW	10	7350	Op	Op	11500	B10.50/24	DB10.50/24	Wau RB	6-5 1/2 x 5 1/2	BL714	U 4	A 3	Tim 66720W	WF	R 8.5	85.0	13x3 1/4 x 1 1/4	P
41	White (12)	60K	1 1/4-1 1/2	1850	112	140	3905	B7.00/20	B7.00/20	Own 2A	6-3 1/2 x 4 1/2	Own 3BC	U 3	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
42		60L	1 1/4-1 1/2	1850	112	140	4210	B7.50/20	B7.50/20	Own 2A	6-3 1/2 x 4 1/2	Own 5B	U 4	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
43		60L	1 1/4-1 1/2	1700	138	157	4420	B7.50/20	B7.50/20	Own GRCB	6-4 1/2 x 5 1/2	Own 5B	U 4	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
44		60L	1 1/4-1 1/2	1900	138	157	4500	B7.00/20	DB7.00/20	Own 2A	6-3 1/2 x 4 1/2	Own 5B	U 4	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
45		611	2-2 1/2	2450	148	196	4960	B7.00/20	DB7.00/20	Own GRCB	6-4 1/2 x 5 1/2	Own 5B	U 4	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
46		612	2-2 1/2	2300	148	196	5170	B7.00/20	DB7.00/20	Own GRCB	6-4 1/2 x 5 1/2	Own 5B	U 4	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
47		612	2-2 1/2	3125	165	175	5295	B7.50/20	DB7.50/20	Own GRCB	6-4 1/2 x 5 1/2	Own 5B	U 4	No	Own 4C	S 1/2	H 5.8	17.6	15x5x5	C
48		612	2-2 1/2	2800	148	196	5500	B7.50/20	DB7.50/20	Own 4A	6-3 1/2 x 4 1/2	Own 5B	U 4	No	Own 7CB	S 1/2	H 5.67	23.4	6 1/2 x 3 1/4 x 1 1/4	C
49		61																		

Line Number	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL	FRONT AXLE	BRAKES		BODY MOUNT-ING DATA				SPRINGS												
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	MAIN BEARINGS		Oiling System Type				Governor Make	Carburetors Make	Fuel Feed	Ignition System Make	Generator, Starter Make	Clutch Type and Make	Radiator Make	Universal Make	Make and Model	Steering Gear Make	SERVICE		Hand Type, Location	Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	Front	Rear	Auxiliary Type
								Piston Material	Number and Diameter															Length	Lining Area								Drum Material
1	462	4.5	300	45	102-2400	L	G	7-3	13%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	576	a	JX	172	108	34	48x3	54x3			
2	462	4.5	300	45	102-2400	L	G	7-3	13%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	500	a	JX	172	108	34	48x3	54x3			
3	462	4.5	300	45	102-2400	L	G	7-3	13%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	658	a	JX	172	108	34	48x3	54x3			
4	462	4.5	300	45	102-2400	L	G	7-3	13%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	W41A	690	a	JX	172	108	34	48x3	54x3			
5	462	4.5	300	45	102-2400	L	G	7-3	13%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	666	a	JX	168	107	34	48x3	54x3			
6	489	4.5	295	43.4	90-2000	L	G	7-3	11%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	666	a	JX	168	107	34	48x3	54x3			
7	549	4.5	330	48	90-2000	L	G	7-3	11%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	666	a	JX	168	107	34	48x3	54x3			
8	549	4.5	330	48	90-2000	L	G	7-3	11%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	W41A	690	a	JX	168	107	34	48x3	54x3			
9	677	4.4	440	60	125-2000	L	G	7-3	11%	CC	Ha	Zen	M	DR	DR	D.Own	Mo	Spl	Tim	Ros	O21MV	666	a	JX	168	107	34	48x3	54x3			
10	109	4.5	136	22.5	50-2600	L	G	7-3	7%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	90%	50%	32	38x2 1/2	50x2 1/2			
11	201	5.5	141	21	60-2600	L	G	7-3	4%	PC	No	Str	P	DR	DR	P.Lo	Fe	Spl	Sal	Ros	B41M	257	E	TX	90%	51%	32	38x2 1/2	50x2 1/2			
12	224	4.8	142	25.3	62-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
13	224	4.8	142	25.3	62-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
14	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
15	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
16	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
17	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
18	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
19	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
20	242	4.8	154	27.3	65-2800	L	G	7-3	8%	PC	No	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41M	257	E	TX	103%	62%	32	38 1/2 x 2 1/2	50x2 1/2			
21	354	4.4	324	36	90-2750	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	348	E	TX	142	84	32	40x3	56x3			
22	462	4.5	300	45	100-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
23	462	4.5	300	45	100-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
24	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
25	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
26	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
27	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
28	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
29	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
30	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
31	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
32	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
33	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
34	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
35	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
36	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
37	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
38	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
39	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
40	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
41	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
42	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
43	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
44	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
45	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
46	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
47	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
48	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
49	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
50	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
51	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
52	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
53	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
54	516	4.5	330	51	110-2000	L	G	7-3	12%	FP	Ha	Str	P	DR	DR	P.BB	Fe	Spl	Sal	Ros	B41MV	453	E	TX	142	84	32	40x3	56x3			
55	516	4.5	330	51	110-2000	L	G	7-3	12%	FP																						

Line Number	MAKE AND MODEL	Wheels Driven—4-Wheelers	GENERAL (See Keynote)					TIRE SIZE		MAJOR UNITS										FRAME	
			Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	Front	Rear	ENGINE		TRANSMISSION		REAR AXLE				Side Rail Dimensions	Type	
											Make and Model	No. of Cylinders Bore and Stroke	Make and Model	Location and Forward Speeds	Aux. Location and Speeds	Make and Model	Gear and Type	Drive and Torque			In High	In Low
1	Federal...D2SW	2R	2 1/2	1050	140	182	12500	3925	B6.00/20	P32x6	Con W10	4-3 1/2 x 4 1/2	WG T9	U 4	No	Cla B373A	SF	H 6.38	40.8	6x2 1/2 x 1 1/2	C
2	.....E2SW	2R	2 1/2	1150	145	187	12500	3975	B6.00/20	P32x6	Con 17E	4-3 1/2 x 4 1/2	WG T9	U 4	No	Cla B373A	SF	H 6.38	40.8	6x2 1/2 x 1 1/2	C
3	.....D2D	4R	2 1/2	1350	140	182	12500	4235	B6.00/20	P32x6	Con W10	4-3 1/2 x 4 1/2	WG T9	U 4	No	Cla B373A	BF	H 6.38	40.8	6x2 1/2 x 1 1/2	C
4	.....E2D	4R	2 1/2	1450	145	187	12500	4310	B6.00/20	P32x6	Con 17E	4-3 1/2 x 4 1/2	WG T9	U 4	No	Cla B373A	BF	H 6.38	40.8	6x2 1/2 x 1 1/2	C
5	.....A6SW	2R	4	2195	164	182	18500	5620	P32x6	DP32x6	Con 16C	6-3 1/2 x 4 1/2	Own 7776	A 4	No	Cla B610A	BF	H 6.38	38.5	6x3 1/2 x 1 1/2	C
6	.....T10SW	2R	8	3895	188	224	28000	9000	P34x7	DP34x7	Con 18R	6-4 1/2 x 5 1/2	BL 607	A 7	No	Tim 58200H	BF	H 7.8	74.1	7 1/2 x 3 1/2 x 1 1/2	C
7	F.W.D....MX6	Op	10-15	10500	170	Op	42750	15000	P40x10	DP40x10	Wau RB	6-5 1/2 x 5 1/2	BL	U 4	A 2	Wis	2F	H 8.36	173	10x3xH	C
8	.....X6	4F	6-10	6400	170	Op	24000	9500	P36x8	P36x8	Wau SRL	6-4 1/2 x 5 1/2	Own	A 5	Op	Own X	WF	H 8.9	88.6	7x3xH	C
9	(6) Gen. Mo. T90	4R	5-7 1/2	5285	185	220	28000	9400	B7.50/20	DP34x7	Own 331	6-3 1/2 x 5 1/2	Own	U 4	A 3	Own	WF	R 9.25	129	9 1/2 x 3 1/2 x 1 1/2	C
10	.....T95	4R	7-11	7695	189	224	40000	13250	P34x7	DP34x7	Own 525	6-4 1/2 x 5 1/2	Own	U 4	Op	Own	WF	R 8.50	53.3	9 1/2 x 4 x 1 1/2	L
11	G-P....75-6SW	4R	6-8	6440	174	Op	28000	9500	B9.75/20	B11.25/20	Wau SRL	6-4 1/2 x 5 1/2	Fu VUOG	U 5	No	Tim SW200	WF	R 7.50	53.0	11x3 1/2 x 1 1/2	L
12	.....75-8SW	4R	6-8	6400	174	Op	28000	9500	B9.75/20	B11.25/20	Lyc AEC	6-3 1/2 x 4 1/2	Fu VUOG	U 5	No	Tim SW200	WF	R 7.50	53.0	11x3 1/2 x 1 1/2	L
13	.....85-8SW	4R	8-10	8695	169	Op	36000	12000	B10.50/24	B12.75/24	Wau 6AB	6-4 1/2 x 5 1/2	Fu MHU	U 4	A 3	Wis SD310	DF	R 8.50	10.6	12x3 1/2 x 1 1/2	L
14	.....95-6SW	4R	10-12	9640	176	Op	40500	13000	B10.50/24	B13.50/24	Wau 6RB	6-5 1/2 x 5 1/2	Fu MUH	U 4	A 3	Wis SD410	DF	R 10.2	128	14x3 1/2 x 1 1/2	L
15	H'ndricks n22D	4R	2-6	3900	Op	Op	22000	7000	B7.50/20	DB7.50/20	Wau MK	6-4 1/2 x 4 1/2	Fu JVU	U 5	No	Own 985	2B	A Opt	Opt	6x2 1/2 x 1 1/2	P
16	.....36D	4R	5-12	6600	Op	Op	36000	11200	B9.75/20	DB9.75/20	Wau 6SRL	6-4 1/2 x 5 1/2	Fu VU	U 5	No	Own 2513	2B	A Opt	Opt	8x3xH	P
17	.....38D	4R	12	8000	Op	Op	38000	13200	B9.75/20	DB9.75/20	Wau 6SRL	6-4 1/2 x 5 1/2	BL 60-7	A 7	No	Eat 44000	2F	A Opt	Opt	8x3xH	P
18	.....44D	4R	12	9000	Op	Op	44000	14000	B9.75/22	DB9.75/22	Wau RB	6-5 1/2 x 5 1/2	BL 70-7	A 7	No	Eat 44000	2F	A Opt	Opt	8x3xH	P
19	Hug....99	4R	10	10305	148	148	58500	15100	S36x8	S40x16	Bud JFC	6-4 1/2 x 6	BL 714-703	U 4	A 3	Wis SD410	2F	R 10.3	139	9x4 1/2 x 1 1/2	C
20	Ind. 95SBT-150	2C	.....	1675	168	186	20000	5500	P32x6	DP32x6	Her JXC	6-3 1/2 x 4 1/2	BL 224	U 4	No	Tim SBT150	SF	T 7.4	45.8	7 1/2 x 2 1/2 x 1 1/2	C
21	.....95SW	4R	.....	3250	188	186	20000	5800	P32x6	DP32x6	Her JXC	6-3 1/2 x 4 1/2	BL 224	U 4	No	Tim SW75	WF	T 7.4	45.8	7 1/2 x 2 1/2 x 1 1/2	C
22	.....17SBT250	2C	.....	3250	188	224	28000	8200	P34x7	DP34x7	Her YXC	6-4 1/2 x 4 1/2	BL 334	U 4	Op	Tim SBT250	BF	R 6.1	37.8	8 1/2 x 3 x 1 1/2	TL
23	.....17SW250	4R	.....	3475	188	224	28000	8500	P34x7	DP34x7	Her YXC	6-4 1/2 x 4 1/2	BL 334	U 4	Op	Tim SW250	WF	R 6.2	38.1	8 1/2 x 3 x 1 1/2	TL
24	Ken....186SDT	2C	.....	6450	.....	.....	.....	.....	B9.00/20	DB9.00/20	Her YXC2	6-4 1/2 x 4 1/2	BL 1554	U 4	A 3	Tim Sdt310W	2F	H 7.33	104	9x3xH	T
25	.....241SDT	2C	.....	6850	.....	.....	.....	.....	B9.00/20	DB9.00/20	Her RXB	6-4 1/2 x 5 1/2	BL 714	U 4	A 3	Tim Sdt310W	2F	H 7.33	85.5	9x3xH	L
26	.....346A	4R	.....	8800	.....	.....	.....	.....	B9.75/20	DB9.75/20	Has 16A	6-4 1/2 x 5 1/2	BL 714	U 4	A 3	Tim 310W	WF	R 7.25	84.5	8x3xH	C
27	.....346B	4R	.....	8550	.....	.....	.....	.....	B9.75/20	DB9.75/20	Bud GF-6	6-4 1/2 x 6	BL 714	U 4	A 3	Tim 310W	WF	H 7.25	98.4	8x3xH	C
28	.....346C	4R	.....	9500	.....	.....	.....	.....	B9.75/20	DB9.75/20	Has 175	6-5 x 6	BL 714	U 4	A 3	Tim 310W	WF	H 7.25	98.4	8x3xH	C
29	.....386C	4R	.....	10200	.....	.....	.....	.....	B9.75/20	DB9.75/20	Has 175	6-5 x 6	BL 714	U 4	A 3	Tim SW410W	WF	H 7.60	103	8x3xH	C
30	Kleiber....280	4R	7 1/2	6000	201	210	28000	10060	B9.00/20	DB9.00/20	Con 20R	6-4 1/2 x 4 1/2	BL 714-60	A 7	A 7	Tim Sw200TW	WF	R 7.75	73.6	7x3 1/2 x 1 1/2	P
31	.....340	4R	10	7000	210	215	34000	11900	B9.75/20	DB9.75/20	Con 21R	6-4 1/2 x 5 1/2	BL 714-60	A 7	A 3	Tim Sw300W	WF	R 9.33	88.6	8x3 1/2 x 1 1/2	P
32	.....340T	4R	10	8000	215	225	34000	13650	B9.75/20	DB9.75/20	Con 22R	6-4 1/2 x 5 1/2	BL 714-60	A 7	A 3	Tim Sw400W	WF	R 10.3	98	12x3 1/2 x 1 1/2	L
33	La Fran-R...Q6	4R	9-12	12000	Op	260	40000	14900	B10.50/20	DB10.50/20	Own 312B	12-4x5	BL 714	U 4	No	Tim SWD410	WF	Opt	Opt	12x3 1/2 x 1 1/2	L
34	LeMoon(9)...701	4R	5-10	4675	187	199	25500	8500	B8.25/20	DB8.25/20	Lyc AEC	6-3 1/2 x 4 1/2	Fu VUOG	U 5	No	T1 63703-97H	WF	R 6.20	45.8	7 1/2 x 2 1/2 x 1 1/2	B
35	.....801	4R	6-7	5400	187	199	32500	9720	B9.00/20	DB9.00/20	Lyc AEC	6-3 1/2 x 4 1/2	Fu VUOG	U 5	No	T1 65703-97H	WF	H 6.75	47.7	7x4xH	B
36	.....802	4R	6-7	5650	187	199	32500	9800	B9.00/20	DB9.00/20	Wau 6SRL	6-4 1/2 x 5 1/2	Fu VUOG	U 5	No	T65703-97W	WF	H 6.75	47.7	7x4xH	B
37	.....900	4R	7-8	6800	191	203	36000	12000	B9.75/20	DB9.75/20	Wau 6SRL	6-4 1/2 x 5 1/2	BL 607	A 7	No	Tim SW310W	WF	H 9.25	86.9	9x4xH	B
38	.....1000	4R	8-10	7500	196	208	40000	12600	B9.75/24	DB9.75/24	Wau 6AB	6-4 1/2 x 5 1/2	BL 714	U 4	A 3	Tim SW310W	WF	H 9.25	128	9x4xH	B
39	.....1200	4R	10-12	8100	196	208	40000	14000	B9.75/24	DB9.75/24	Wau 6RB	6-5 1/2 x 5 1/2	BL 714	U 4	A 3	Tim SW410W	WF	H 9.25	128	9x4xH	B
40	Maccar....SW86	4R	10-12	9000	216	260	38700	14500	B10.50/20	DB10.50/20	Her RXCP	6-4 1/2 x 5 1/2	BL 615	A 5	No	Tim spec.	WF	.....	.....	12x3 1/2 x 1 1/2	T
41	Mack....AC	4R	8-15	8500	217	257	45450	12000	P40x8	DP40x8	Own BK	6-4 1/2 x 5 1/2	Own AC	J 4	No	Own AC	CD	A 9.26	59.4	8x3xH	C
42	.....AP	4R	8-15	9000	217	257	41350	15900	B9.75/22	DB9.75/22	Own BK	6-4 1/2 x 5 1/2	Own AC	A 4	No	Own AK6	2F	A 7.46	47.8	8 1/2 x 3 x 1 1/2	C
43	.....AP	4R	8-15	10500	217	257	40300	14850	P40x8	DP40x8	Own AP	6-5 x 6	Own AC	J 4	No	Own AP	CD	R 9.26	59.4	8x3xH	C
44	.....AP	4R	8-15	11000	217	257	41550	16400	B9.75/22	DB9.75/22	Own AP	6-5 x 6	Own AC	A 4	No	Own AK6	2F	A 7.46	47.8	8 1/2 x 3 x 1 1/2	C
45	P-A...34150184	.....	(11)	200	200	34000	13200	B9.75/20	DB9.75/20	Her RXB	6-4 1/2 x 5 1/2	Co TNU	U 4	Op	Tim SW310	W	A 9.25	49.0	10x3xH	C	
46	.....34K61184	.....	(11)	200	200	34000	14200	B9.75/20	DB9.75/20	Her GXA	6-4 1/2 x 5 1/2	Own 618290	U 4	Op	Tim SW310	W	A 9.75	40.6	10x3xH	C	
47	.....44K77984	.....	(11)	200	200	44000	14500	B10.50/20	DB10.50/20	Her HXA	6-5 1/2 x 6	Own 618290	U 4	Op	Tim SW410	W	A 9.75	47.2	10x3xH	C	
48	Relay....P8S170	2R	10	6545	175	205	36500	14100	P38x7	DP40x8	Bud BA6	6-4 1/2 x 5 1/2	Fu VU16	U 5	No	Own 60	2R	R 9.09	63.2	8 1/2 x 3 1/2 x 1 1/2	C
49	Sterling...P8S180	4R	8-8 1/2	10210	Op	Op	.....	14100	P36x8	DP36x8	Wau HB	6-4 1/2 x 5 1/2	Own UC2	U 4	A 3	Own	CD	R 9.5	59.6	15x3 1/2 x 1 1/2	C
50	.....FCS180	4R	9-9 1/2	10400	Op	Op	.....	14450	P40x8	DP40x8	Wau AB	6-4 1/2 x 5 1/2	Own UC8	U 4	A 3	Own	CD	R 9.5	59.6	15x3 1/2 x 1 1/2	C
51	.....FCS210	4R	10 1/2-12	10825	Op	Op	.....	14750	P40x8	DP40x8	Wau RB	6-5 1/2 x 5 1/2	Own UC8	U 4	A 3	Own	CD	R 9.5	59.6	15x3 1/2 x 1 1/2	C
52	Wht. 630SW200	4R	5-6	6245	193	205	.....	10000	B8.25/20	DB8.25/20	Own 3AD	6-4 1/2 x 5 1/2	Own 4B	U 4	No	Tim SW200H	WF	R 6.75	44.2	8 1/2 x 3 1/2 x 1 1/2	C
53	.....642SW310	4R	7-9	8025	198	210	.....	12670	B9.00/20	DB9.00/20	Own 1AB	6-4 1/2 x 5 1/2	Own 7B	U 4	No	Tim SW310W	WF	R 8.5	55		

KEY TO ABBREVIATIONS AND REFERENCE MARKS

GENERAL

Chassis Price—Chassis price quoted applies to the standard wheelbase and specifications listed. All prices are F.O.B. factory.

Gross Vehicle Weight—Is chassis weight, plus body and cab, plus payload. Gross vehicle weight given is governed by the tires specified.

Line Number	ENGINE DETAILS										FUEL SYST.	ELEC-TRICAL	FRONT AXLE	BRAKES	BODY MOUNT-ING DATA	SPRINGS										
	Piston Displacement	Compression Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Arrangement	Camshaft Drive	Piston Material	MAIN BEARINGS																	
1	200	4.7	126	24.0	48-2500	L	L	A-3-2 1/2	57	CC	Mo	Zen	M DR	DR	P BB	Lo	Cle	Cla F212								
2	215	5.1	137	27.3	60-2600	L	L	A-3-2 1/2	59	CC	Mo	Zen	M DR	DR	P BB	Lo	Cle	Cla F212								
3	200	4.7	126	24.0	48-2500	L	L	A-3-2 1/2	57	CC	Mo	Zen	M DR	DR	P BB	Lo	Cle	Cla F212								
4	215	5.1	137	27.3	60-2600	L	L	A-3-2 1/2	59	CC	Mo	Zen	M DR	DR	P BB	Lo	Cle	Cla F212								
5	248	5.0	150	27.3	64-2600	L	L	A-3-2 1/2	10	CC	KP	Zen	M DR	DR	P BB	Lo	Cle	Cla F304								
6	339	4.2	212	38.4	80-2200	H	L	A-3-2 1/2	13	FP	KP	Zen	M DR	DR	P BB	Lo	PS	Own 7738								
7	677	4.4	460	60.0	125-2000	H	L	A-3-2 1/2	11	FP	Wa	Zen	M DR	DR	P BB	Lo	PS	Own 7738								
8	462	4.4	230	34.7	94-2500	H	L	A-3-2 1/2	8	FP	Wa	Zen	M DR	DR	P BB	Lo	PS	Own 7738								
9	331	4.4	230	34.7	94-2500	H	L	A-3-2 1/2	8	FP	Wa	Zen	M DR	DR	P BB	Lo	PS	Own 7738								
10	525	4.5	380	48.6	128-2100	H	L	A-3-2 1/2	14	FP	Ha	Str	M DR	DR	P BB	Lo	Spl	Own 7738								
11	462	4.6	300	45.9	100-2400	L	L	A-3-2 1/2	13	PC	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 26450H								
12	420	5.2	300	45.9	135-3000	L	L	A-3-2 1/2	11	FP	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 26450H								
13	549	4.5	335	48.6	100-2000	L	L	A-3-2 1/2	11	PC	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 27450H								
14	677	4.4	460	60.0	125-2000	L	L	A-3-2 1/2	11	FP	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 27450H								
15	381	4.6	240	40.8	100-2000	L	L	A-3-2 1/2	13	PC	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 27450H								
16	462	4.6	300	45.9	97-2000	L	L	A-3-2 1/2	13	PC	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 27450H								
17	462	4.6	300	45.9	97-2000	L	L	A-3-2 1/2	13	PC	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 27450H								
18	677	4.4	460	60.0	126-1850	L	L	A-3-2 1/2	10	PC	Wa	Str	M AL	AL	D BL	Ch	Lo	Tim 27450H								
19	638	4.3	410	54.1	126-1850	L	L	A-3-2 1/2	10	PC	Pe	Zen	M DR	DR	P BB	Lo	Spl	Tim 27450H								
20	282	5.3	186	33.7	90-2500	L	L	A-3-2 1/2	10	PC	No	Zen	M AL	AL	P BB	Yo	Spl	Tim 31020								
21	282	5.3	186	33.7	90-2500	L	L	A-3-2 1/2	10	PC	No	Zen	M AL	AL	P BB	Yo	Spl	Tim 31020								
22	428	4.4	283	45.9	94-2200	L	L	A-3-2 1/2	14	CC	Ha	Str	M AL	AL	P BB	Yo	Spl	Tim 31020								
23	428	4.4	283	45.9	94-2200	L	L	A-3-2 1/2	14	CC	Ha	Str	M AL	AL	P BB	Yo	Spl	Tim 31020								
24	453	4.7	300	48.6	98-2200	L	L	A-3-2 1/2	14	CC	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 35000N								
25	501	4.9	330	48.6	110-2200	L	L	A-3-2 1/2	12	CC	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 35000N								
26	418	4.4	322	33.3	125-2400	H	L	A-3-2 1/2	10	FP	No	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000N								
27	638	4.3	410	54.1	126-1850	L	L	A-3-2 1/2	10	CC	Bu	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000N								
28	707	4.4	506	60.0	170-2000	H	L	A-3-2 1/2	11	FP	HS	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000N								
29	707	4.4	506	60.0	170-2000	H	L	A-3-2 1/2	11	FP	HS	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000N								
30	411	4.2	236	40.0	89-4000	H	L	A-3-2 1/2	13	FP	No	Str	V RB	DR	D BL	Lo	Spl	Tim 16302								
31	427	4.2	267	45.9	100-2600	H	L	A-3-2 1/2	13	FP	No	Str	V RB	DR	D BL	Lo	Spl	Tim 16302								
32	638	4.3	410	54.1	120-2400	H	L	A-3-2 1/2	13	FP	No	Str	V RB	DR	D BL	Lo	Spl	Tim 17300								
33	754	5.1	510	76.7	240-2900	H	L	A-3-2 1/2	10	PC	No	Zen	M DR	DR	P BB	Lo	Spl	Tim 27450H								
34	420	5.2	300	45.9	130-2800	L	L	A-3-2 1/2	12	FP	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 35000H								
35	420	5.2	300	45.9	130-2800	L	L	A-3-2 1/2	12	FP	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 35000H								
36	462	4.5	300	45.9	98-2000	L	L	A-3-2 1/2	13	PC	Wa	Str	M AL	AL	D BL	Ch	Spl	Tim 35000H								
37	462	4.5	300	45.9	98-2000	L	L	A-3-2 1/2	13	PC	Wa	Str	M AL	AL	D BL	Ch	Spl	Tim 35000H								
38	549	4.5	332	48.6	100-2000	L	L	A-3-2 1/2	11	PC	Wa	Str	M AL	AL	D BL	Ch	Spl	Tim 26045H								
39	677	4.4	460	60.0	127-2000	L	L	A-3-2 1/2	11	PC	Wa	Str	M AL	AL	D BL	Ch	Spl	Tim 26045H								
40	529	4.9	350	51.2	112-2000	L	L	A-3-2 1/2	14	PC	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 27450H								
41	525	4.8	350	48.6	125-2300	L	L	A-3-2 1/2	11	PS	Ow	Str	V RB	LN	P OW	Ow	Spl	Own AC								
42	525	4.8	350	48.6	125-2300	L	L	A-3-2 1/2	11	PS	Ow	Str	V RB	LN	P OW	Ow	Spl	Own AC								
43	706	4.5	427	60.0	138-1900	L	L	A-3-2 1/2	12	FP	Ow	Str	V RB	LN	P OW	Ow	Spl	Own AC								
44	706	4.5	427	60.0	138-1900	L	L	A-3-2 1/2	12	FP	Ow	Str	V RB	LN	P OW	Ow	Spl	Own AC								
45	501	4.6	330	48.6	110-2200	L	L	A-3-2 1/2	11	PC	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 27050								
46	611	4.5	410	54.1	130-2000	L	L	A-3-2 1/2	16	PC	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 27050								
47	779	4.5	510	66.1	170-1800	L	L	A-3-2 1/2	16	PC	Ha	Str	M DR	DR	P BB	Lo	Spl	Tim 27050								
48	411	4.5	270	40.8	83-2100	L	L	A-3-2 1/2	12	FP	Bu	Zen	V AL	AL	D BL	Lo	Spl	Tim 35000H								
49	489	4.5	295	43.4	90-2000	L	L	A-3-2 1/2	11	CC	Ha	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000H								
50	549	4.5	330	48.6	99-2000	L	L	A-3-2 1/2	11	CC	Ha	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000H								
51	677	4.4	460	60.0	125-2000	L	L	A-3-2 1/2	11	CC	Ha	Zen	M DR	DR	P BB	Lo	Spl	Tim 35000H								
52	396	4.9	250	38.4	100-2100	H	L	A-3-2 1/2	13	FP	Ow	Zen	M DR	DR	P BB	Lo	Spl	Own 6D								
53	519	4.0	333	45.9	118-2100	H	L	A-3-2 1/2	15	FP	Ow	Zen	E LN	LN	dp. Ow	Ow	Spl	Own 12D								
54	519	4.0	333	45.9	118-2100	H	L	A-3-2 1/2	15	FP	Ow	Zen	E LN	LN	dp. Ow	Ow	Spl	Own 12D								

KEY TO ABBREVIATIONS AND REFERENCE MARKS

BRAKES—SERVICE

Location

- 2—Two Wheels, rear only.
- 2/4—Two-wheel brakes effective on all four wheels through drivetrain.
- 4—Four Wheels, front and rear.
- 4r—Four Wheels, rear only.
- 6—Six Wheels, front and rear.
- J—Jackshaft.
- P—Propeller shaft.

Type

- I—Internal.
- X—External.

Operation

- A—Air.
- D—Hydraulic and mechanical.
- H—Hydraulic.
- M—Mechanical.
- V—Vacuum.

BRAKES—HAND

Location

- C—Center of double propeller shaft.
- 2—Rear wheels.
- 4—Four wheels.
- R—Worm or bevel gearshaft.
- T—Transmission.
- F—Driveshaft.

Type

- D—Tru-Stop disk.
- I—Internal.
- X—External.

BRAKE DRUMS

Material

- a—Cast alloy iron.
- A—American Car Fdry.
- D—Dayton.
- E—Ermalite.
- G—Gunite.
- H—Hunt Spiller.

CLUTCH

Type

- D—Multiple disk.
- dp—Double plate.
- O—Plate in oil.
- P—Single plate.

ENGINE

Valve Arrangement

- H—In head.
- L—"L" head.
- T—"T" head.

Camshaft Drive

- C—Chain.
- G—Gear.

Piston Material

- A—Aluminum alloy.
- B—Semi-steel.
- C—Cast iron.
- N—Nickel iron.
- S—Aluminum alloy with strut.

Main Bearings

- r—Rear main bearing.

Oiling System

- CC—Pressure to main, connecting rod and camshaft bearings.
- FP—Pressure to main, connecting rod, camshaft bearings and piston pins.

FUEL SYSTEM

Fuel Feed

- E—Electric pump.
- G—Gravity.
- M—Mechanical pump.
- P—Pressure.
- V—Vacuum.

REAR AXLE

Final Drive and Type

- B—Bevel.
- D—Dead.
- F—Full-floating.
- H—Hypoid.
- I—Internal Gear.
- 2—Double Reduction.
- R—Relay—Pendulum Drive.
- S—Spiral bevel.
- W—Worm.
- w/2—Worm or Double Reduction.
- Optional.
- 1/2—Semi-floating.
- 3/4—Three-quarter floating.

Drive and Torque

- A—Radius Rods and Torque Arm.
- H—Hotchkiss, (springs)

SPRINGS

Auxiliary Type

- 1/2—Semi-elliptic above or below main springs.
- 3/4—Quarter elliptic.
- C—Coil spring.
- N—None.
- O—Optional.

TIRES

- B—Balloons.
- DB—Dual Balloons.
- P—High Pressure Pneumatics.
- DP—Dual High Pressure Pneumatics.
- S—Solids.
- DS—Dual Solids.
- c—Pneumatics at extra cost.

TRANSMISSION

Location

- A—Amidships.
- J—Unit with jackshaft.
- U—Unit with engine.
- N—Not furnished.
- Op—Optional.

Auxiliary Location

- No—Not furnished.
- Op—Optional at extra cost.
- A—Amidships.
- R—Rear of amidships main transmission.
- U—Unit with engine.

WHEELS DRIVEN

- 2C—Center pair of rear wheels.
- 2R—Rear pair of rear wheels.
- 4F—Front and center pair of rear wheels.
- 4R—Four rear wheels.
- 6—Six wheels.

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